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Amateur Radio

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**Amateur Radio's
GEM**

**Drew Diamond
VK3XU**



**VK5UH's
Shack in a
Briefcase**



**A basic Microwave signal source
covering 1100 to 1900MHz**

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Our cover this month

Prolific AR technical contributor Drew Diamond VK3XU. Photo by
Ron Fisher VK3OM. See story page 2

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

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Photostat copies

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Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

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A radio communication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Editorial Comment

Colwyn Low VK5UE

"Use it or Lose it" is always before us

This month has seen me running round in circles and getting nowhere. My address was not on a mailing list and the people who needed to contact me assumed it was. No amount of modern technology gets round that one. Also this month's magazine seems to have had continuous minor delays. Texts seem to have been corrupted and diagrams gone astray. Well you are reading this so we must have overcome the problems.

Amateur radio continues to have hurdles paced in front of it but we still seem able to get over them or round them. The EMC regulations are an inconvenience, which we have to put up with. They are not the greatest problem we have encountered and for most of us no action other than write on a piece of paper, the power we use, the mode we operate and the height of the antenna.. will be all that is necessary. For others we will have to consider the antenna placing with respect to the fence line and its height in relation to the power and the average transmit to listen time in our normal operation will solve the problem. The ACA web site does carry charts and tables and formulae, if we have to do a formal assessment.

The next few months have important Amateur Contests and activities, which will keep some of us in our nice cosy shacks and others in their cold

shacks. The Remembrance Day Contest will be held on August 17th and 18th. The ALARA contest is in its new slot of August 24 and 25th. The International Lighthouse Weekend coincides with the RD so you could do the two together. There are also a few Sprints being held in July and August.

The other thing that Winter brings is the opportunity to plan and build new equipment. The chance to look at incorporating a new mode into our stations. We could get a digital interface for PSK or we could build the circuits to give us access to the IRLP. I hear some clubs are experiencing new life from Internet Linked Repeater activities.

Amateur Radio is about communication, learning to be better at communicating and meeting other people to exchange knowledge. Things have changed greatly in the last few decades and we must move with the times. However the old adage "Use it or Lose it" is always before us.

Remember when WRC 2003 was years in the future? Well it is now NEXT YEAR. Have you considered making a contribution to the cost of sending Amateur Representatives from Australia to the conference? The WIA has a fund for this. The Conference will now be in Geneva not Venezuela so the cost to the WIA will most likely go up.

So keep active.

73 Colwyn

July cover

Amateur Radio's gem

This month we have put Drew Diamond on the cover, as for once there is not one of his articles inside.

Drew's interests in Amateur Radio are QRP operations and homebrew equipment. Drew's working life was with the Research Labs of the old PMG Department and its successors. Since then he has spent his time developing useful Ham Radio equipment AND writing it up in a publishable form. His articles in AR are regarded as practicable and have

the reputation that if Drew publishes it, it works and the components are available in Australia. We wish to express our thanks to Drew for all he does for Amateur Radio in general and this Magazine in particular. Drew has published two books of his projects, however only Vol 2 is still available. Contact Drew QTHR.

Photograph by Ron Fisher VK3OM

Some great responses...Thank you!

AR Take 5 Survey

Responses to the survey continue to arrive. So far I have recorded 174 responses to the survey and more appear each day. Thank you to everyone who has taken the time to respond.

For those who included a separate letter I am in the process of responding to you individually - please forgive me if you have not already received a reply - I am working on them and letter writing was never a strong point of mine.

I have not undertaken any full analysis of the responses yet but a number of key issues are clearly identified already:

1. Many of you have referred to the need to smarten up the operation of the WIA particularly in keeping you informed and more importantly listening and responding to your communications. I hope that my monthly comments in AR and the associated broadcasts go some way to addressing your needs. However there is a common theme that we need to make information about current events available to you more regularly. I also note that the majority of you appear to have Internet access and I see this as a great opportunity to use this as a means of getting information to you in a timely manner.

I will be speaking to the other members of the executive in the near future to discuss how we might achieve this improvement in communications. In the meantime don't forget that we already run a very informative web page at www.wia.org.au where information can be published between the monthly issues of AR.

2. Many of you have expressed a concern over the fragmentation of

the WIA into separate Divisions with the associated duplication of administrative functions. A large number of respondents have indicated that they believe that the time has come to move towards a single national body that represents all amateurs in Australia.

3. Many of you have indicated support for continuing to distribute AR on the newsstands. In fact there have been a number of suggestions on how we might improve AR in the future. I have carefully noted these suggestions so that once we have a clearer idea of public interest we can be in a position to examine the technical feasibility of implementing these ideas.
4. Finally I note that the survey strongly confirms that we as a group are indeed mostly male and all on the wrong side of 40. This for me a clear indication that we need to look at recruiting more lady members as well as younger members. I would like to throw you a question: "How do we make amateur radio attractive to the fairer sex and the younger generation?". I look forward to some of you writing to me with your suggestions (especially if you are a member of these two groups).

WIA Structure

Following last month's call for volunteers to assist in the Strategic Review of the WIA, and its structure I have been pleased with the initial response of offers of assistance. I am keen to finalise the composition of the review team and therefore would ask anyone else who is keen to participate in this exercise to make contact with me immediately. We need to move quickly if we are to be in a position to recommend any required changes in time for next year's AGM,

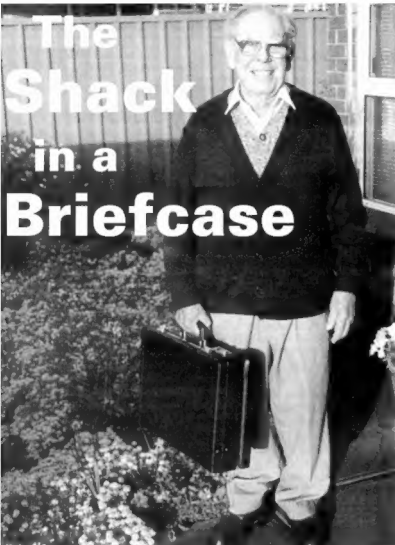
AR

I am pleased to report following in principle agreement of council to move to full distribution of AR throughout Australia that results for the month of June indicate another successful month. I have therefore arranged for the publisher to move to full scale distribution of AR throughout Australia. If anyone knows of any amateur or interested party who experiences any problems in obtaining a copy of AR please drop me a line so that I can liaise with the publisher and distributor in order to quickly resolve any such matters. I hope that as we can establish a sound foundation of the distribution of AR that we will be in a much better position to consider ways to improve the Journal including I hope ways to reduce costs.

WRC 2003

Your response to my request for donations in support of Australia delegates to the World Radio Conference in Venezuela has been incredible. Within a week of AR being published for June, the Federal Office has received well over 200 donations. I hope that we will be able to list the call signs of all of you who so kindly donated to this important event. The importance of these donations may soon become even more apparent with the recent announcement of the change of venue for the event. I fully expect that wherever the new location is for the conference that the expense that we will incur will almost certainly be as high if not greater than that for the Venezuela conference.

I will bring this issue of my notes to a close and wish you all 73s. I look forward to hearing your views on any amateur radio related matters and hopefully circumstances will permit me to meet with many more of you over the next 12 months.



Section 1

With the reduction in the size of radio transceivers we have come to a situation where something like the FT100 or IC706, all band full power rigs, can be carried around in half a briefcase.

You can even run up to 30 watts on a 12 volt 7 amp-hour gel cell battery, which takes up a little more of the case. With lightweight switch mode power supplies becoming available, the portable shack is a distinct possibility. There is only one catch - the antenna. For many, two 10 metre poles and 20 metres of wire are definitely out of the question. Even the average mobile antenna is very awkward to carry or use unless mounted on a vehicle. I wish to present the "Mini Ant" - an antenna, which will fit in the other half of the briefcase and work on 11 bands!

Photo 1. Ron Holmes VK5UH and his shack

THE "SHACK IN A BRIEFCASE" idea is attractive to many old-timers like myself now living in units or other situations where shack room is scarce and antennas against the skyline are not allowed. My recent article "Invisible Antennas" in *Amateur Radio* of April 2001, recounted some of my early attempts to overcome this. I had some other good ideas built into the roof cavity but these were upset when a cooling system, which filled the area with aluminium ducting, was installed.

What I needed was an antenna that would fit in the other half of the briefcase, could be used indoors or portable, and would operate on 11 of the bands my FT100 uses. I decided that 160 metres was perhaps stretching it a bit too

far. Everything from 80 metres to 70 centimetres would do. This is what I now have and it works amazingly well.

It can hardly be called a DX antenna but recently I sat it on a low table beside the beach at Victor Harbour, set it for 17 m and received a 5/9 report from VK2AYE in Sydney followed by a 15 minute QSO with GW4GTE in Wales who gave me a 5/5-6 report. He was using a shortened dipole at 30 ft (9 metres).

From inside the shack at home I worked WQ9H in Indiana. He was running a kilowatt to a 5 element monoband Yagi but we both gave 5/5 reports in the clear. A quick test from the home QTH on 20 m on the traveller's net gave me 5/5 from Perth, 5/6 from

North Queensland and 5/9 plus 10 in Melbourne. On 40 m (the 7.103 MHz net) all VK5 stations gave 5/7-9 reports. On my regular 80 m net all VK5s gave me 5/9 plus and VK3 5/6. The only problem on 80 is that background noise can swamp an otherwise strong signal. I find 30 m works extremely well and have worked VK4 satisfactorily on 15 m and local stations on 10 m but to date do not have reports on 12 m. On 6 m it allows me at least to operate through the two repeaters in Adelaide. I have not tried it beyond that. Both 2 m and 70 cm work well on a 50 cm vertical being 1/4 wave on 2m and 3/4 wave on 70 cm.

In short, I now have an antenna sitting on the filing cabinet on the other side of the shack, which runs 11 bands and



Photo 2. Mark 1



Photo 3. Mark 2

gives me more opportunities for ham operation than I can find time for. When I go away it fits along with the FT100 in the briefcase and can be set up for any band in a few minutes. The response from one Ham I talked to was *Anyone want to buy my 80 ft. tower?* I have given this little antenna a real splurge in this introduction, not because I have something to sell, but because I suspect that when they see what it is, many hams will be inclined to disregard its usefulness. My only answer is *Try it yourself*. Make a single band version for a start as I did if you like. I will give a brief description of models Mark 1 (Photo 2) and Mark 2 (Photo 3), if the editor has room for them, but Mark 3 (Photo 4) is no harder to build and much more useful.

What is it?

This antenna is in essence a base loaded whip. What makes it special is the method of allowing it to be tuned spot on, including the ability to return to that tuning position; and the roll-up radials, or, if you like, counterpoise. In the photos of Mark 1 (Photo 2) and Mark 2 (Photo 3), the preliminary models, Mark 1 (Photo 2) is made of pillboxes with the lids glued to the bottom so that different coils can be added. The coil in use is for 40 m and the spare for 20 m. The bottom container has a 100 pF variable capacitor for final tuning. The radials are 5 metre metal measuring tapes. This worked very well but became bulky with more spare coils. Mark 2 (Photo 3) is built into a metal box, which holds everything for carrying and becomes the base in use. 40 m and 80 m coils are shown. (The box shows signs of wear. It was built by the author 56 years ago as a toilet box for his kit when he was a RAAF radar mechanic in PNG;

using a panel souvenired from a Japanese army transmitter captured by the AIF at Wewak). Mark 3 (Photo 4), which will be described in detail, covers 11 bands and is tuned by means of [A] a tapped coil, using plugs and sockets, [B] the length of the telescopic whip, and [C] the length of the radials. The info for each band is kept before your eyes on a printed card on the front of the antenna.

Building the antenna

You will need - reading from my docket at a well-known electronics store

- Project Box Black 95x160x61mm - 2 of (Not the boxes which have sloping ends)
- Winding Wire 100g 20B&S/or 0.8mm
- UHF Line Plug PL259, RG213/RG8 (You won't need the insert)
- UHF Panel Socket S0239 Square Mount - 2 off
- Plug Banana Standard 4mm Red - 2 off
- Plug Banana Standard 4mm Black - 2 off
- Socket Banana Plain 4mm - 10 off. (I got 3 each in red, black and green & 1 yellow)
- Knob Plastic Black Pointer Screw (Or similar for the rotary switch)
- Switch Rotary 6mm 2 Pole 6 Pos 1 Gang (A simpler switch would do if you don't want to include the SWR bridge and dummy load. The SWR bridge and dummy load will be dealt with separately as they are not essential.)
- Socket Banana Bind/Post large block - 2 off (Or any solid terminal connector)
- A telescopic Antenna at least 85 cm long, preferably 95cm or more. (The cheapest way to get this if you don't

have one is from a TV antenna in a "Cheap as Chips" or "Cunninghams" type store.)

- Length of PVC pipe 125mm long and about 42 mm outside diameter.
- Selection of small bolts and nuts.

Many will find most of what is needed in the junk box but I have made sure that everything is available if you no longer have room for a junk box.

Earlier models

Mark 1 (Photo 2)

My first attempt used the "Slow K" pillboxes which I was accumulating as they kept reminding me of coil formers. By gluing lids to the bottom of the containers I could mount them on top of one another as required.

The 40 m coil has 35 turns of cotton covered wire (that shows you how old my junk box is) with the top connected to a S0239 socket mounted on the top lid to which the telescopic whip is screwed, and the bottom to a banana socket on the side near the bottom. A lead and plug from the container with the capacitor connects to this. The 20 m coil is likewise with 16 turns. The bottom container is mounted on a base originally used for a UHF antenna. The tape measure radials cost about \$3 from a Cheap as Chips store.

The coiled coax is because when used with my FT 100 the rig showed high SWR and refused to work. Since the SWR as read on my Osler Block meter with the FT901 was flat, this was a problem. The Yaesu people informed me that sets like the FT100 are full of microchip circuits which are very sensitive to RF on the outside of the coax. The answer was to wind the coax (15 to 20 turns) to form an RF choke. This fixed it.

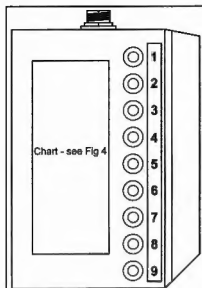


Figure 1

© WA ARI1082_1 Drawn by VK3BR

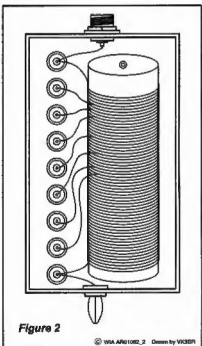


Figure 2

© WA ARI1082_2 Drawn by VK3BR

Mark 2 (Photo 3)

This is a much more serviceable arrangement and very convenient as everything, apart from the coax, fits in the 13 cm by 21 cm by 8 cm metal box, which is itself the base. The whip in this case has shorter sections. The coils are wound on a piece of PVC tubing of 35 mm outside diameter about 12 cm long.

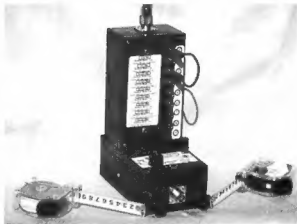


Photo 4. Mark III

This will be found in the hardware store. The end caps will be found nearby. They have a S0239 socket fixed to the top one for the whip and the appropriate arrangements made to screw on to the base depending on the method you use. My 40 m coil has 65 turns of 0.8 mm wire and resonates with a 67 cm whip. The 80 m has 125 turns of 0.63 mm wire and resonates with a 94 cm whip.

Mark 3 (Photo 4).

Whether you go for the "bells and whistles" version or the basic, the top half is the same. See Figs 1 and 2.

The coil winding is probably the way to go first. Drill the mounting holes for the former (the PVC pipe) with the centres 6 mm in from the ends. A 3/16 inch diameter (5mm) hole should fit a suitable short bolt and nut to fix it to the inside of the lid of Project Box 1. Start the winding with three small holes drilled in the former about 7mm apart in line for the first turn and about 10 mm in from the end. At least enough to clear the mounting nut. These should be on the left hand side of the mounted coil looking at the back of the front panel. Drill 3 more small holes 15 mm in from the bottom end. Poke the end of the wire through the first hole about 10 cm, back through the second and through the third leaving the end inside the former. Now wind from the top, stopping every five turns and giving the wire a right angle kink out from the former of a couple of mm with needle-nosed pliers. These will be the tap points and there will be seven, ie the last will be at 35 turns. Now wind the rest of the coil down to the finishing holes at the bottom. There should be about 108 turns altogether but a couple either way won't

matter.

Again leave a few centimetres inside the former.

The front panel (see Fig.1) should now be drilled as per the pattern and the banana sockets fitted. The coil can then be mounted; the tappings have the enamel scraped off and tinned, and the connections from coil to sockets soldered using the same wire as for the coil as per Fig. 2. Two sets of plug links should be made using the Banana Plugs at either end of a length of pliable insulated wire just long enough to allow a connection from top to bottom of the sockets. The project box belonging to the front panel should now have the S0239 socket mounted on the top. Draw lines diagonally from the corners with the front panel in place and drill the hole where they cross. If you don't have a big enough drill bit, use the biggest you have and ream it out with a round file. The four small holes can be drilled through and secured with nuts and bolts but make sure the bolts are short enough to avoid the coil former. Small screws may do instead.

In the centre of the bottom of the box drill another hole to take a short bolt to which the bottom of the coil is connected and which fixes the top box to the horizontal bottom one. A couple of small screws from underneath the lid of the bottom box will stop the top one from turning.

The bottom box, Project Box 2, forms the base supporting the antenna and also contains some extras to make it easier to tune. The other S0239 socket is fitted to the front end with a pair of terminals either side of it to which the two roll-up 5 metre tapes are connected using wire

loops soldered to the ends of the tapes. The centre connection of the socket goes to one pole of a 2 pole six position rotary switch. The earth connection goes to the two terminals and the other pole. The rotary switch is mounted on the box lid. Beside it, is another socket into which the telescopic antenna at 50 centimetres is inserted for 2 m (1/4 wave) and 70 cm (3/4 wave). If you like, another S0239 socket can be used but the simple banana socket takes the centre of the 259 plug quite satisfactorily. Switch position 6 goes to this. Position 3 goes to the bolt and bottom of the antenna coil. Mount the switch with the tag nearest the end of the lid. This makes the pointer face the HF antenna on position 3 and the VHF/UHF antenna on position six, if you have the centre of the coax connected to the right pole. Positions 1 and 2 are used for the dummy load and SWR Bridge respectively. Positions 4 and 5 are blank. Also on the lid, between the switch and plug and the vertical antenna box, are mountings for a pair of LEDs, one red and one green. These are indicators from a simple SWR bridge built into the bottom box. Position 1 goes to this. Provision is also made for a 25kΩ potentiometer to control sensitivity of the SWR indicators. If you decide you do not need this aid to tuning, the switch can be simpler and the

LEDs and sensitivity control omitted. Instructions for building the SWR bridge and dummy load will be the subject of the latter half.

The Telescopic Antenna

This may have various arrangements on the bottom end but one way or another they can be soldered into the centre of a UHF PL259 line plug. This is the kind with a large entrance for 10 mm diameter coax. Cover the bottom end of the whip with a short piece of the outer covering of 3-core mains cable or similar. The insulation is not necessary but it will hold the whip firm in the plug. On the section above the lowest section of the antenna mark with black paint lines 5 cm apart for about 20 cm. This will enable you, knowing the full length of the whip, to quickly adjust it to shorter lengths as required.

Tuning the Antenna

If you wind the coil as per instructions the arrangements indicated in the card made to slip in a clear plastic envelope on the front of Box 1 (Fig 4 and Photo 3) should be close to correct. If not, you

3.56 MHz Radials Both 4m Vert 80 cm Coil 1-3
7.07 MHz Radials Both 3 m Vert 80 cm Coil 9-6
10.125 MHz Radials Both 3 m Vert 83 cm Coil 9-5
14.116 MHz Radials Both 3 m Vert 95 cm Coil 9-7 & 2-5
18.135 MHz Radials Both 3 m Vert 100 cm Coil 9-6 & 3-5
21.350 MHz Radials Both 3 m Vert 85 cm Coil 9-3
24.925 MHz Radials Both 3 m Vert 85 cm Coil 9-2
29.400 MHz Radials Both 2.5 m Vert 90 cm Coil 9-5 & 1-5
53.750 MHz Radials Both 2 m Vert 85 cm Coil 9-1

Figure 4. For front of Project Box

may have the more difficult task of getting them right with the help of a GDO or continuous coverage receiver. Noise response once you have removed your hand from the whip will give a good indication to start with. Then you can check for 1:1 SWR.

The purpose of having two sets of linking plugs is to make use of the fact that the closer to the base of the coil you go the more inductance change will be found in the 5 turn coil sections. If you find it difficult to tune to the frequency using the bottom of the coil connected to any one of the other 8 positions; you can find variations in between by using a combination of lower and upper sections.

If your whip is too short, a couple of unshielded alligator clips can be attached to it, either part way up or at the top. Clip one to the whip and the other to the first if required. Sometimes this can make the change from one end of a band to the other very simple.

Note that most frequencies work with 3 metre radials but 80 m requires 4 metres a side and 10 m worked best with 2.5 metres and 6 m with 2 metres.

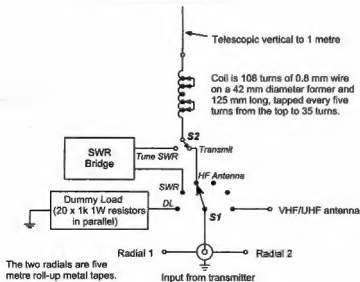


Figure 3

© WVA AR01082_3 Drawn by VY3BR

Continued on page 9

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The Shack in a Briefcase continued

Section 2

Bells and Whistles

In Section 1 of this article the major instructions for building the Mini Ant were given. This section is to describe the SWR Bridge and Dummy Load, which I built into the bottom project box. These are to enable tuning of the antenna while it is at too great a distance from the transceiver to be running back and forth while tuning. It is particularly useful in the case of many modern rigs where the SWR meter is built into the transceiver.

In addition to the parts list given previously you will need:

- 2 - RCA plugs and sockets,
- 1 - 3.5mm stereo plug and socket,
- 1 - sealed diecast aluminium box 64 by 58 by 35 mm
- SPDT toggle switch (small),
- 1 - 25kΩ pot.
- 2 - 5mm round LEDs (Premium quality) 1 - Red and 1 - Green with bezels,
- 2 - 1N4148/914 diodes or substitutes,
- 6 - 100Ω 1 watt resistors
- 2 - 680Ω 1 watt resistors
- 4 - 0.005mF or 0.01 mF capacitors
- 1 - tag strip 3 lug, (large),
- Scraps of matrix board, hook-up wires.

The idea is that if the initial setting up of the antenna according to the info card does not give you 1:1 SWR at the rig you move to plan B. Send a continuous signal of up to 5 watts from the transceiver into the antenna switched to "Dummy Load", (Position 1). By switching to "Tune SWR" on a small SPDT switch on the lid of the bottom box behind the antenna, and turning the main switch to position 2 "SWR", this signal now goes through the SWR Bridge to the antenna. The two LEDs will probably light up. Adjust the sensitivity control till they are just glowing. Switch back to Dummy load (Position 1) and adjust the vertical whip length a couple of centimetres one way or another, then back to SWR (Position 2) when the green light continues to

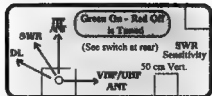


Figure 5a. Front and Top Project Box 2



Figure 5b. For back of box 2 if using built in tuning system

glow and the red one goes out you are on frequency. Now turn the rear switch to "Transmit" and the front one to position 3, "HF ANT", and all should be in order.

The 5 watt or less signal can be arranged by sending a CW note with the key closed, or by choosing AM mode and putting a rubber band round the Push to Talk lever on the microphone.

The SWR Bridge

This is based on a circuit appearing in my ARRL Antenna Handbook of 13th edition, 1974 and 17th edition, 1994, and no doubt many others, under the heading "Resistance Bridge". See Fig.9 The original used a meter and switching arrangement as an indicator. I have replaced this with 2 LEDs, green for forward reading and red for reverse, both in circuit all the time the bridge is operating. I have not seen this idea used before but as long as the sensitivity control keeps the LEDs at a reasonably low level it seems sufficiently accurate for the purpose in hand. Of course, even with a meter indicator this level adjustment has to be made. The 680Ω resistors replace the 47kΩ ones in the original circuit.

I have made the bridge

TUNING PROCEDURE FOR HF
Adjust radials, coil tapplings and vertical as per front settings. If antenna is near rig check for flat SWR on rig meter. It should be OK. If not, switch off rig and adjust vertical.

Where antenna is distant from rig do initial adjustments to correct settings, then turn switch to dummy load and feed constant signal of no more than 5 watts to it. Switch to SWR at both front and back of antenna and adjust sensitivity for green LED to glow. If red LED is off while green glows SWR is correct. If not, return to dummy load and adjust vertical. When correct switch to HF ANT at front and Transmit at back.

USING VHF/UHF

Switch to VHF/UHF ANT. Place vertical at 50 cms long in socket. Remove links from HF section. With little adjustment this will work at 1/4 wave on 2 metres and 3/4 on 70 cms. Radials can be almost anything.

Figure 5c. For back of project box 1

resistors two 100Ω 1 watt in parallel, rather than the 50Ω half watt of the original, simply to allow for possible mistakes. Like one I made in the experimental stages by sending well over 5 watts into the system and frying a half-watt resistor.

The drawing of Fig 6 shows that I have also changed the construction from that

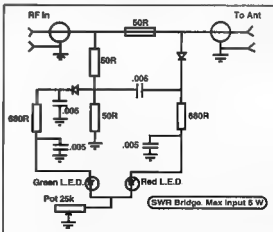


Figure 6. SWR Bridge All resistors are 1 watt. 50R are 2-100R, 1W, in parallel. I used 1N4148/914 signal diodes and 5 mm round premium qual. LEDs

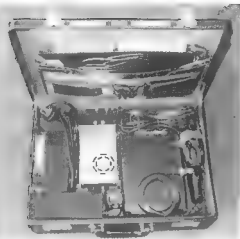


Photo 5. The Shack in the briefcase



Photo 6. The Shack in use at Pt Hughes

in the handbook. I put it in a diecast aluminium box 84 mm by 58 mm by 35 mm, because this fitted neatly. It is attached to the side of the plastic box with a screw. Of course you can make your own box if you wish. The main thing is that all is in a metal shield and that there is as little coupling between the bridge arms as possible.

Power goes into and out of the box via RCA plugs and sockets and to the LEDs and sensitivity pot via a 3.5mm stereo socket and plug. Please note. The diecast box wall is too thick for the nut on the stereo socket to screw right in. You need to file it back so that the plug seats properly. I spent hours looking for a fault in the circuit before I woke up to this.

The SPDT switch at the back end of the bottom box has the centre connected to the antenna base bolt, the lead from position 3 on the front switch to one side and the output of the SWR box to the other.

The Dummy Load

Twenty 1 k Ω 1 watt resistors mounted in parallel along a piece of matrix board or similar, 100mm by 45 mm, will fit along the wall of the plastic box opposite

the SWR box. One connection goes to earth and the other to position 1 on the switch. Even if you don't build in the SWR Bridge the dummy load can be handy when making adjustments.

Two construction hints:

- (1) The RCA plugs and Stereo plug will be best with their covers left off.
- (2) Wire up the 6 position switch and solder lug for the VHF socket before mounting them in the lid.

The other connections to sensitivity potentiometer, 3 lug tag strip, LEDs, antenna coil base and rear switch can be made with the lid of the bottom box fixed to the top box and lying vertically against the edge of the bottom box on the side away from you when the front of the antenna is to your left.

Finally

I have been playing with this antenna for some time now and learning what it

will and won't do. Under good conditions with low noise level it will make you readable at remarkable distances on all bands. Under noisy or poor conditions the other end you will have difficulty being read, even when you can read the other station well. In fact, on receive I have often found the Mini gives better results than a larger antenna because it picks up less noise. I presume this is because it is more precisely tuned than a broadband antenna.

Which leads to its value as a receiving antenna for SWLs. Since I bought the FT 100 with its so wide coverage I have spent many pleasant hours scanning and listening to all sorts of signals. Even if you only build it for this purpose, its portability and ability to tune to so many bands, including those outside the amateur bands, could be well worthwhile.

af

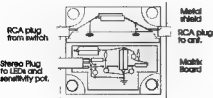


Figure 7a SWR Bridge in diecast aluminium box

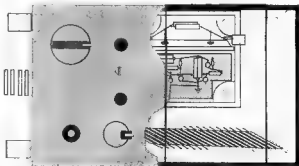


Figure 7b. Cutaway view showing SWR Bridge and Dummy Load inside bottom box. The screw between the LEDs holds a 3 lug tag strip for the LED and sensitivity pot connection. SWR Box lid is off in drawing

A basic Microwave signal source covering 1100 to 1900MHz

Dale Hughes, VK2DSH

A variable frequency oscillator that covers a range of useful frequencies for the microwave experimenter.

The idea for such a device developed while building a receiver for the 21cm Hydrogen emission line. A signal source was needed for testing and aligning the receiving system. A search through the

'Mini-Circuits' catalogue revealed a suitable voltage controlled oscillator was available. This device, part number POS-2120W, covers the range from 1060MHz to 2120MHz. Thus it was useful for the

23cm amateur band as well. The initial idea was to use the VCO module as a free running oscillator. An idea then hatched about using a phase locked loop to lock the VCO to a more stable frequency at a much lower frequency.

A search of various catalogues revealed that there wasn't much in the way of suitable components available. Dick Smith Electronics used to have a 1GHz prescaler (SAB 6456) that might be useful, but they are no longer stocking the device. Sophisticated devices were available that required a microprocessor to operate, but that was getting a bit complicated. As luck would have it, a solution was found in some surplus equipment from the local scrap yard. I obtained for a few dollars some surplus fibre optic video links and the

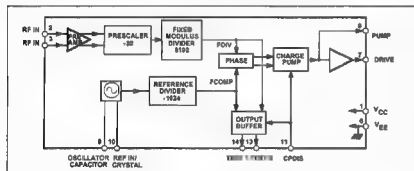


Figure 1: Block diagram of the SP5070

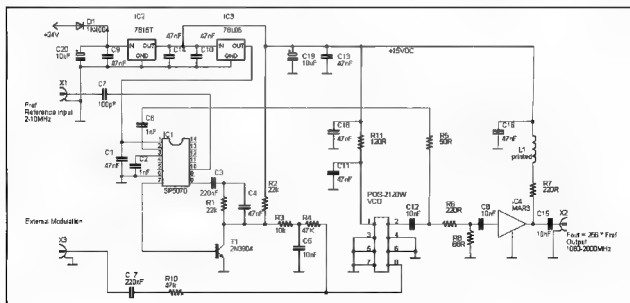


Figure 2: Schematic diagram of the oscillator.

Frequency Vs Tuning voltage

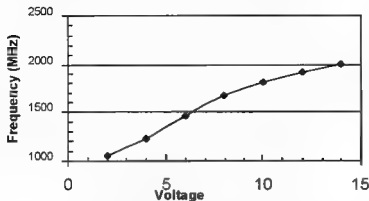


Figure 3: VCO frequency Vs voltage

units contained a suitable device for the oscillator project. The device in question was a SP5070 and a search of the Web provided a set of data sheets. The SP5070 IC is a fixed modulus frequency synthesiser covering the range 300MHz to 2400MHz, hence it contains a set of high speed dividers and a phase comparator. Figure 1 shows a block diagram of the chip.

What makes this chip so useful is that it can be used to control a voltage controlled oscillator which generates an output frequency that is phase locked to a stable low frequency source. The output frequency is two hundred and

fifty six times the input frequency. For example, if the reference frequency is 5MHz, the VCO output frequency is 1280MHz. Thus, the combination of the POS-2120W VCO and a SP5070 forms the basis of a useful wide range microwave frequency source.

The circuit is simple as can be seen in figure 2. A suitable low frequency reference signal with an amplitude of about 500mV, is coupled to pin 10 via a 100pF capacitor. The microwave signal from the VCO is split two ways, a signal of about 300mV is coupled to the high frequency prescaler and divider via pin 2. A MAR 3 MMIC acts as a buffer

amplifier for the oscillator output. The network of resistors and capacitors between the VCO and the MAR 3 provides DC isolation, signal splitting and impedance matching. The VCO, MMIC and prescaler input 'see' approximately 50Ω. In addition, the microwave circuitry is 50 Ω microstrip.

The output signal from the SP5070 phase comparator (pin 7) is filtered by a suitable low pass filter network so that the VCO control voltage is a smooth DC. The SP5070 also includes a 'charge pump' so that the smoothed output voltage is greater than the supply voltage. This is very useful as it considerably simplifies the interface between the SP5070 phase detector and the VCO, as the VCO requires a voltage swing of 20 volts to cover its rated frequency range. As implemented, this circuit does reach the maximum VCO frequency as the maximum voltage available to the VCO is only 15 volts. The measured frequency swing of the prototype is 1070MHz to 1900MHz.

Provision has been made to frequency modulate the VCO output. A modulating signal is coupled to the VCO frequency control port to modulate the oscillator output frequency. As the modulation frequency is going to be much higher than the cut off frequency of the PLL low pass filter, the mean VCO frequency will still be set by the low frequency reference but will be frequency modulated. Only a few millivolts of signal are required to generate a large frequency shift. See figure 3 for the relationship between VCO control voltage and output frequency. It can be seen that a 1 volt change corresponds to a frequency change of approximately 100MHz, so narrow band FM will require a very small voltage swing!

Construction

The unit is constructed on a double sided circuit board, with the top layer used as a ground plane. Numerous wire links are soldered between the ground areas of the underside of the circuit board and the upper ground plane. As the circuit uses through hole as well as surface mount components, there are components mounted on either side of the board. Coaxial connections to the circuit are made by means of PCB mounted BNC and SMA connectors,

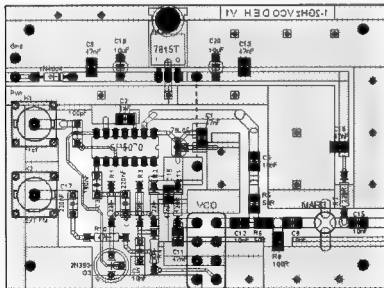


Figure 4: Component layout viewed from the top.

figure 4 shows the placement of the components on the PCB. Figures 6 & 7 show the completed unit.

The surface mount resistors and capacitors were obtained from scrap computer and mobile telephone circuit boards. It is easy to remove the components by heating them with a hot air gun and picking the components off the PCB with a pair of tweezers when the solder melts. It is a good idea to test the components after removal.

When assembling the circuit board, it is best to start with the ground links, followed by the surface mount components and finally the other components. It is useful to tin the copper where the surface mount components are to be mounted. First apply the solder and then use some solder wick to remove the bulk of the solder so that a thin, flat film of solder remains. The surface mount components can then be easily soldered with a minimum of heat. The best solder to use contains 2% of silver, this has the advantage of a slightly lower melting point as well as reducing leaching of silver plating from the surface mount component solder pads.

Component sources

The Mini-Circuits VCO module and MAR 3 MMIC are available from Clarke & Severn Electronics (Ph: 02 9482 1944). As mentioned earlier, scrap computer and mobile telephone boards are a rich source of useful surface mount components and the removal process is an easy skill to master. Obtaining the SP5070 is likely to be a bit more difficult, however it is available by mail order.

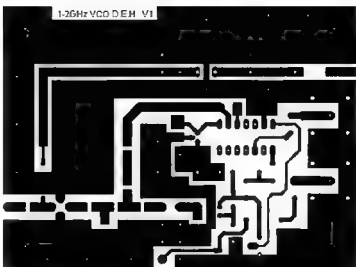


Figure 5: Circuit board artwork viewed from the solder side. The board dimensions are 3 inches by 4 inches. The author can provide this artwork in electronic form if required.

The following web sites are useful:

<http://www.xs4all.nl/~barendh/Indexeng.htm> for purchasing the SP5070 via mail.

<http://electronics.la4.net/Me.htm> for SP5070 data sheets.

<http://www.minicircuits.com> for VCO and MMIC data sheets.

The rest of the components should pose no problems.

Conclusion

The oscillator module is a useful device for microwave experimenters. It can be used as a stand alone test oscillator or

as a frequency source for transmitters and receivers. The circuit is easy to build and get going. It also serves as a simple introduction to using surface mount components.

The schematic diagram and board layouts were done with EAGLE software. It is available off the web and is free for hobby use. It is a very easy to use and versatile PCB and schematic editor. See <http://www.cadsoft.de> for details.

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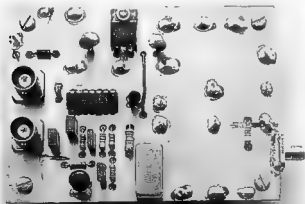


Figure 6: Photograph of the component side of the completed PCB assembly.

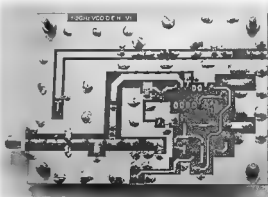


Figure 7: Photograph of the solder side, showing surface mount components.

WIA Federal Convention 2002

An observer's observations

Peter Parker VK3YE

12/8 Walnut St, Carnegie, Vic, 3163

<http://www.alphalink.com.au/~parkerp/>

Earlier this year an e-mail came through from VK6, 'Would you like to be an observer at this year's Federal Convention?'. Being free that weekend, the offer was too good to pass up. Attending would provide an insight into how the WIA works that too few see. Also being a resident of VK3 but a member of VK1 attending the convention as a guest of VK6 did not escape my wry sense of humour!

My Expectations

Before the convention I read annual reports from the various Federal Coordinators and the seventeen motions being put forward by the Divisions.

I had two expectations for the convention. The first was that it made decisions that furthered the progress of amateur radio and the WIA. Secondly I expected the meeting to meet all statutory obligations as regards reporting, election of office bearers, etc.

In forming my opinion on this I made allowance that much of the discussion would be inward-looking. This was because sixteen of the seventeen motions on notice pertained to WIA internal matters and not broader issues related to amateur radio. I also took into account limitations imposed by the WIA's current structure, which can sometimes hinder decision-making.

Observations and recommendations

I do not propose to go into a blow-by-blow description of motions carried and lost at the Convention. These have already been covered by the various state news bulletins and the official report on the Convention by the Federal President. Instead I will report my observations and recommend improvements.

What I saw in Melbourne was a group of hard-working delegates who had the best interests of amateur radio and the WIA at heart, though with occasional differences as to how these were best advanced. Attendees told me that the politics, deals and cliques of previous years were absent in 2002. The result was a convivial atmosphere with divisions mostly cooperating with one another.

Many discussions were enriched by

the presence of representatives from the NZART and the practical expertise of some present (eg Ron Bertrand VK2DQ in education and Martin Luther VK5GN in marketing). The proceedings were kept on topic by the firm but good-humoured chairmanship of Federal President Ernie Hocking VK1LK and the comity of all present.

Particularly beneficial was the reservation of time for informal discussion on both the Friday afternoon and the Saturday. These discussions were on important matters affecting the WIA and amateur radio's future and fit the category of 'important but not urgent'. All too often they are confined

... it is important that delegates have a shared understanding of what is legal and what is not. This is so decision making at future conventions is not stifled by doubts over the legality of motions.

to the end of meetings when attendees are too tired to take them seriously, or are not talked about at all.

The scheduling of this time on the first two days for the important (or strategic) matters was a good move, as was the use of the final day to consider the motions on notice. The tight finish deadline (most attendees had planes to catch) and the fact that much prior discussion had already occurred made it easier to reach a decision on each motion. Having the meeting chairman assigning responsibility for the execution of each motion and providing a time deadline for action was also beneficial and should result on more motions being implemented than in previous years.

A few cases arose where the current Divisional structure can potentially hamper the Convention's ability to make decisions.

One example encountered was in the setting of membership subscriptions. As it happened, no increase in the Federal component was proposed for 2002, so the problem did not arise. However if there was to be a significant increase or decrease in the Federal fee component (for example as part of a scheme to attract new members), at least some divisions would have to convene extraordinary general meetings to ratify the change. One Division said that this would require several weeks and \$1200 to provide the necessary notice to the membership. If all Divisions had to go through this procedure, the cost of implementing a simple decision of Federal Council would be very high, with no guarantee of success.

Another pattern that emerged during the weekend was that several motions were claimed to be illegal by one Division's federal councillor. In all but one case these motions were fairly minor and did not attract the required support. In the one instance where the motion was important, the Division concerned was outvoted and the motion was carried.

A common thread of these motions was that they compelled another separate organisation (in this case the Divisions) to do something (normally to share a cost or go along with a review that may propose a restructuring) that the Divisions themselves might not agree to. The Councillor concerned seemed eager not to expose his Division to these potential costs or risks. As mentioned before, this had little effect on the outcome of this year's convention as the motions concerned were fairly minor and failed to attract required support.

To avoid these problems, it is important that delegates have a shared understanding of what is legal and what is not. This is so decision making at future conventions is not stifled by

doubts over the legality of motions. If there is a consistent pattern of important motions running up against legal obstacles relating to the WIA's structure, it is important that reforms be made to correct this. It is hoped that the president's WIA Review and Strategy Committee will address this matter.

A topic raised last year was the issue of communication with members. It would be fair to say that members were better informed about convention outcomes this year than last. The VK3 Division's website carried frequent updates while the convention was in progress. The 200 email subscribers to APC News received daily convention reports, with Sunday's update going out barely three hours after the convention concluded. Interstate news services picked up on these reports, meaning that most interested people would have been informed about the convention within one week of it happening. A worthwhile reform for next year could be to offer this 'fast news' service via the Federal website, as well as having reports and details of motions online before the Convention.

Of even greater importance, but linked to the above, is the extent to which the WIA and the Federal Convention relate to the interests and concerns of mainstream radio amateurs. In this connection, it is vital that WIA delegates not be seen as faceless nobodies who meet in ivory towers and don't get on air.

The NZART effectively counters this perception by making its annual Convention the country's key amateur radio event. As well as including delegates from the Branches, the convention is open to ordinary members, who are also encouraged to attend presentations and meetings on various aspects of amateur radio.

Such an event would require significant work to organise. However the convention's host division could provide the required volunteers. A welcome first step would be to make most if not all of the WIA convention proceedings open to visiting members, without requiring that they be appointed as observers first. The convention's on-air profile could be boosted through the use of the seldom-used VK3WIA call sign

(allocated to WIA Federal) operated as a special event station during the weekend.

The WIA's Federal Co-ordinators do much good work in various specialised aspects of amateur radio. Much of this effort is unknown to members.

These topics were discussed during the Convention when reports were received and co-ordinators appointed.

However there are some important facets of amateur radio that do not fall within any federal co-ordinator's bailiwick. An example of a popular interest falling 'between the cracks' and going undiscussed is the promotion of general on-air activity (unrelated to contests or awards) despite its obvious importance and following.

This shows there may be a need to appoint extra co-ordinators for important matters such as raising general on-air activity and promoting amateur radio. Time should also be reserved at future conventions to discuss these topics, as was done this year with Martin Luther's *Marketing Amateur Radio in Australia* paper. This would increase the amount of time the convention spends on important matters and strengthen the WIA's role in increasing and improving amateur radio activity in Australia.

As mentioned before just one of the seventeen motions proposed for the 2002 Convention related directly to the overall welfare of amateur radio. This motion supported a 'Foundation Licence' grade. I found the lack of motions on other substantive matters affecting amateur radio disturbing. This could be for a number of reasons, including:

- i. A perception that everything is right with all aspects of amateur radio activity and nothing needs changing, and even if it did, the WIA couldn't do much about it;
- ii. A fatalistic view that the level of on-air activity is in inexorable decline, and WIA initiatives to

much good work in various specialised aspects of amateur radio. Much of this effort is unknown to members. Examples include contests, awards and education.

foster renewed activity amongst lapsed and inactive amateurs are futile;

- iii. Some measures are already being implemented by one or more Divisions without Federal motions being required;
- iv. There is a lack of rigorous thought in WIA Divisions about the long-term betterment of amateur radio, the WIA's role in bringing this about, and the will to propose appropriate motions;
- v. There is a gaping chasm between those with the bright ideas and those with the WIA organisational know-how to transform an idea into a carried motion;
- vi. Office bearers are reluctant to sponsor new ideas as they require money and volunteer resources that are not available.

I consider that all the above points above are valid, but that iv and v are most important, followed by i, ii and vi. Several points underlie the need for the organisation to consciously nurture new ideas. This is because ideas are fragile in their early stages and can be easily shouted down.

Very few ideas make the transition to official WIA policy. This is mainly because so few are introduced as motions in the first place. Ideas can also be left to wither and die on the WIA's organisational vine, which is often misunderstood by members, including the idea's original proponent. Those ideas that are successful tend to be either

The real test now will be whether the motions carried will be acted on during the year. But so far, the signs look good.

those derived from overseas (so are seen as 'safe') or those that have powerful and persistent backers within

the WIA organisation able to sustain it through numerous processes.

For us not to be seen as 'idea killers', Divisional and Federal Councils need to become 'idea incubators'. This means being willing to give new ideas a fair hearing, even those that may be controversial. A formal process could also be needed, if necessary involving a new position of 'Federal Ideas Advocate' to act as a 'champion for change', collate ideas and report to the Federal President, Council and Directors.

Continued on page 17

Bordertown Primary School contacts Space station

Tony Hutchison VK5ZAI

May 14, 2002—Astronaut Dan Bursch, KD5PNU, has completed the last QSO in a string of largely successful Amateur Radio on the International Space Station (ARISS) school contacts by Expedition 4 crew members. Taking the controls of NA1SS on May 14, Bursch answered questions posed by 15 students from the Bordertown School in Bordertown, Australia.

Bursch was able to answer all of the students' questions. Near the end of the contact, he told the students to make the most of their education in order to achieve their dreams and goals.

Hundreds of excited students and parents gave Bursch a huge cheer as the ISS went over the horizon and contact ended. The event was covered on Australian radio and TV in prime time—at 8:30 PM local time in Bordertown.

Tony Hutchison, VK5ZAI, in South Australia was the school mentor and the master of ceremonies for the event, which was made possible via a

teleconferencing circuit with Gerald Klatzko, ZS6BTD, in South Africa.

ARISS School Contacts Coordinator Tim Bosma, W6ISS, took advantage of the occasion of the last Expedition 4 school contact to thank all involved for helping to make it a success.

I want to thank everyone involved; the folks at NASA who support this program; the volunteer mentors who prepare the students and the schools; the telebridge station operators who frequently have to get up in the middle of the night to make these contacts; and the organizations—WorldCom, AMSAT

and the ARRL Bosma said.

Your support for this educational program makes it possible for students to talk to the astronauts and get excited about careers in science. This is a once in a lifetime experience for the students, teachers and the parents, and it does make a difference.

ARISS school contacts are expected to resume in late June when the Expedition 5 crew of mission commander and US astronaut Peggy Whitson, KC5ZTD, and Russian cosmonauts Valeri Korzun and Sergei Treschev settles in aboard the ISS

■

Club News

Gippsland Gate Radio & Electronics Club

Attention past members

Following the AGM in April, Gippy Gate's new President Peter Pavey thanked the outgoing Committee and proceeded to bring together the new office bearers to give the Club a lift.

Amongst other events happening at GGREC, the Annual HAMFEST has been given high priority by the new Committee and promises to be even better than past years. The GGREC HAMFEST has always been a popular event on the Amateur calendar and with all sellers tables booked plus some, it has the grounds for being the most successful yet. If you missed the HAMFEST flyer inserted in AR the venue is — the Girl Guide Hall in Grant St. Cranbourne off the Cranbourne / Frankston Rd. The date to remember is the 20th July and the starting gun will be fired at 10am with sellers gaining entry at 8.30am. Our traditional BBQ will be fired up and some lucky person will win

a great door prize. During the day, raffle tickets will be sold with the prize being a 2 metre FM transceiver valued at \$450.00. Be there on the day or for more details call Reg (VK3UK) on 03 9547 9859.

Another important event on our calendar is the 25th celebration dinner to be held in the guest room at the Cardinia Park Hotel, Beaconsfield. Past members of the Club are especially welcome. A booking will be required. The dinner will be held on Saturday 27th of July. For more information please call either Peter (alias The Pres) on 59983533 or Ian (alias Mr Secretary) on 56252545. Rumor has it that a very special guest has been invited to the dinner.

After a good many years of faithful service, the Club has finally replaced its 2M FM radio. The old Trio with its many crystals for all the best frequencies will be raffled to Club members at a future meeting. This radio has been to the bottom of the Murray River and back (there's a story attached to this) and still works as well as it did on its first QSO.

For those who are aspiring to become licensed or upgrade, we are planning to hold classes again in 2003. More details will be forthcoming in future issues but to get yourself on the "please let me know" list, call either of the above numbers or email the Club at secretary@ggrec.org.au.

■

EMR limits further delayed

Jim Linton VK3PC

The Electromagnetic Radiation (EMR) limits for amateur stations that were expected to begin on 1 July, have been delayed at least six months.

The Australian Communications Authority (ACA) had planned to implement the EMR human exposure limits through the Licence Condition Determinations for apparatus licences including amateur stations.

However, the ACA has now advised the WIA that it has decided to delay the issuing of the new Licence Condition Determinations to mandate the EMR exposure limits, until it can formally adopt a new radiation exposure standard.

The Australian Radiation Protection and Nuclear Safety Agency has developed a new Radiation Protection Standard Maximum Exposure Levels to Radiofrequency Fields 3kHz to 300 GHz.

The EMR limits that have been proposed by the ACA are based on the lapsed Australian and New Zealand Standard AS2772.1 - and not the new standard.

In practice, there is little difference between the two standards, at least as

far as the Amateur Service is concerned.

The adoption of the new standard won't significantly change the EMR limits already proposed by the ACA and publicised in the June edition of *Amateur Radio* magazine.

In the meantime the WIA recommends that radio amateurs continue to be sensible with the use of RF energy, and keep in mind the proposed EMR limits when installing antennas.

David Mathison VK2KLV

3 May 1939 – 5 October 2001

Dave Mathison VK2KLV formerly VK4KLV was licensed for 25 years and only held the callsign "KLV"

Dave was a true amateur in the real sense of the term, as he could not be described as a black box operator.

He was always playing around with antenna design and built a spectrum analyser which he based on a published design, but he was not satisfied with it so he redesigned it, and it certainly was a credit to him.

Dave was one of the first to build a

voice operated microphone which he used in his car on the two metre band.

Modification of old commercial radios and reprogramming eproms for them was another of Dave's interests and he had also been involved in the design and construction of a Doppler R.D.F. unit.

A keen Clubman, he was a previous Treasurer of the Liverpool Club and he also donated the tower on which the Club's repeater is mounted. He was also a keen member of the Hornsby Club. For many years Dave was the auctioneer for

the Liverpool Club and wielded a baseball bat with great dexterity as part of his auctioneering style.

Dave was a hydraulics engineer with Berendson and its predecessors for the past 19 years.

Dave was married to Heather for 35 years and had a son Craig, daughter-in-law Kim and two grandchildren, Jared and Georgia.

Farewell mate!

Garry Barker VK2TGR

Hon secretary

Liverpool & District Amateur Radio Club

Silent Key

WIA Federal Convention. An observer's observations

Continued from page 15

Of course having ideas is of little use if there is no one to implement them. For this reason there needs to be a bias towards ideas that are cheap and quick to implement. Ideas whose proponent has agreed to do the work involved should also be fast-tracked.

The implementation of other ideas depends on our ability to motivate non-members to join (made easier if we are no longer seen as 'idea-killers'), retain existing volunteers (by reducing the number who resign due to 'internal politics') and attracting new volunteers. These are all key issues for us and attention to them at future conventions will make the WIA a better organisation.

Did the WIA Federal Convention meet my expectations?

The answer was an emphatic yes, with decisions made on all the important topics brought before it. The real test now will be whether the motions carried will be acted on during the year. But so far, the signs look good.

I would like to thank the WIA VK6 Division for having me as an observer and thus making this report possible. I highly recommend attendance at a Federal Convention for anyone with a serious interest in amateur radio and the WIA. If you wish to attend, contact your Division beforehand and ask to be made an observer.

Licence fees go up

As part of an annual review, the Australian Communications Authority has increased radiocommunications apparatus licence fees by a 3.5% Consumer Price Index (CPI) adjustment.

The cost of a single year for all amateur station licences from 2 June, 2002, will be \$53.90, which is an increase of \$1.

The ACA advises that the fee for 2-years \$101.10, 3-years \$147.30, 4-years \$193.50 and 5-years \$240.70.

A low cost microwatt meter

Dele Hughes VK2DSH

The need arose to measure RF output from various MMIC amplifiers and oscillators when experimenting with some circuitry for the 23cm amateur band. The following device was easy to build and gives good results.

It is based on a simple diode detector, which normally would not be ideal for very low signal levels, however the addition of a small bias current significantly improves performance. If the input to the device is kept less than 100mV, or 0.2mW (-6dbm) into 50Ω, the detector voltage output is proportional to power input. Power input as small as

20mW (-46dbm) can be measured, this is 1mV into 50Ω. The power range can be extended by using suitable attenuators on the detector input if required. For the theory behind this type of diode detectors see reference (1) P147.

The device is constructed on a small printed circuit board and is housed in

an aluminum enclosure for the purposes of RF screening and thermal stability. Standard G10 fiberglass material is used.

RF input is coupled via a SMA connector to the detection circuitry. DC isolation is provided by C1, C2 & C3. DC isolation is required as the bias diode bias current flows through both diodes and the 50Ω resistor. The 50Ω load resistor consist of two 100Ω resistors in parallel, this reduces stray inductance and increases power handling. Diodes D1 and D2 are in the same SOT143 surface mount package and are well matched as they are packaged together. A small forward bias current is supplied via R4 so that the diodes are always conducting. Capacitors C2, C3 and C5 decouple the bias so that no RF energy is coupled to D2. Two diodes are used so that the effects of temperature drift on the diodes forward voltage drop is reduced. Only one diode (D1) has RF applied to it, the second diode (D2) is used only as a reference so that changes in the diodes can be removed from the output signal. The DC from each diode is fed to the input of a differential amplifier (U1). The bias current components are connected so that they subtract from each other. As the diodes are well matched the difference should be zero, leaving only the detected RF from D1. So that temperature effects are minimized, the complete circuit is mounted on a 1 cm thick piece of aluminum with a matching cover that has a milled cavity to cover the SMD components.

Surface mount components were used to make the unit as small as possible. The AD817AR was salvaged from a junked CD-ROM drive, the SMD capacitors were removed from scrap PCBs. The SMD resistors and the HSMS-2815 dual Schottky diode were purchased from Farnell Electronic Components. Note that almost any op-amp with the same pin connections as the AD817AR could be used.

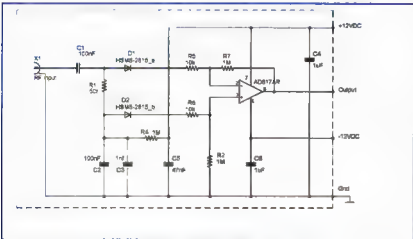


Figure 1: Detector schematic

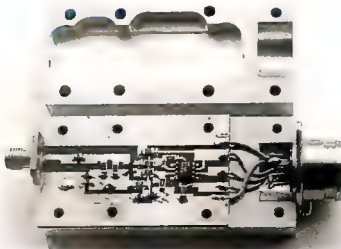


Figure 2: Photograph of the circuit board mounted on the aluminum block.

The performance of the detector was measured to get an idea of its sensitivity and frequency response.

The results clearly show that for low level signals the diode is operating in the 'square law' region which gives a nicely linear voltage output versus power input. In dbm this range is -46dbm to -6dbm. Above this region the diode enters its linear region and the output voltage is proportional to input voltage rather than power.

The chart shows the response of the detector versus frequency, referenced to the detector response at 10MHz.

Conclusion

The detector design presented here is a low cost device suitable for measuring over a wide range of frequencies. It is easy to construct and uses readily obtainable components and should be very easy to get working.

Reference

**Solid State Design For The Radio
Amateur, W Hayward W7ZOI & D
Demaw W1FB. ARRL.**

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of MAY.

L21190	G Gam
L21191	F Backer
L31574	Mr M Willis
L41069	J P Berkhout
L50617	Mr J L Cradock
VK2AEB	Mr A E Brown
VK2BS	W Buffrey
VK2KVE	M Ryan
VK2TEA	Mr R B Cooper
VK3AJK	Mr J Spark
VK3BE	Mr C Howe
VK3EJR	Mr J P Rose
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VK5KTK	Mr G R Kent

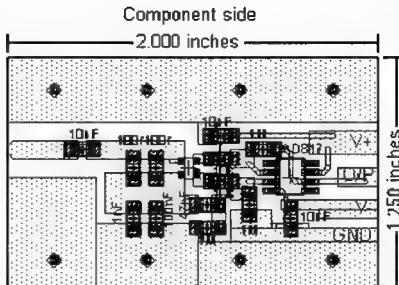


Figure 3: PCB component layout.

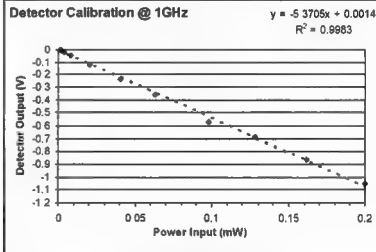


Figure 4: Detector calibration at 1GHz

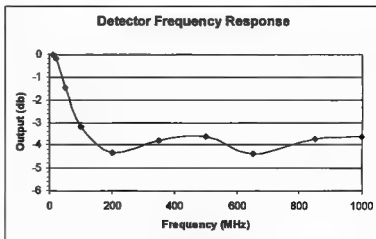


Figure 5: Frequency response

Remembrance Day Contest

The tradition at the RD Contest is to have a silence on the bands and to read out the names of those Radio Amateurs who died while in the Services. Col Harvey has been checking the records in the National War Memorial and what follows is his findings and his views as to how we should refer to those who died.

Amateur Radio's WW2 Silent Keys

Col. Harvey, VKIAU

The annual WIA Remembrance Day Contest names 26 members as having "Paid the Supreme Sacrifice" during WW2. The term is emotive and inaccurate. Here is a summary of the causes of death of those Australian Amateurs.

Executed: VK3HN
Killed in Action: V K 3 S F ,
VK2BQ
Killed in Flying Battle:
VK3UW, VK3VE, VK6JG,
VK5BL, VK6PP
Killed in Ground Battle :
VK2VJ
Murdered by natives : VK4DR
Died in action at sea: V K 3 N G ,
VK3PV, VK3IE, VK6GR
Died of illness: VK2JV, VK5BW,
VK3OR, VK5AF
Aircraft accident: V K 2 B Q ,
VK3PL, VK4FS, VK4PR
Accident at sea: V K 3 D Q ,
VK6KS
Ground accident: V K 2 A J B ,
VK3GO
Not Yet Found: VK2YK

Brief biographies of these men follow....

VK3IE Mann J.E

Leading Telegraphist. HMAS "Parramatta". D 27/11/41 when the ship was torpedoed off Tobruk with 137 casualties.

VK6GR. Rippen A.H.G

Telegraphist. Presumed killed in action 20/11/41 when HMAS "Sydney" was lost with 645 hands in the Indian Ocean after engaging the German raider "Komoran".

VK2JV Roberts C.D.

NX59083 Signaller. D 3/7/43 in Siam- illness.

VK3DQ Morris J.D

VX16925 T/Maj. AAMC 2/2 CCS. D 24/6/44 at sea SWPA Accident.

VK3HN McCandlish J Sgt.

VX80269. "M" Special Unit. D 31/8/43. Executed

VK3SF Jones S.W

NX463748 Gunner. 52 Comp. A.A Regt. D 12/11/44 in Dutch New Guinea. Killed in action

VK4DR Laws D.A Lt.

"M" Special Unit. D 5/5/43 New Guinea. Escaped by small Boat from near Pall Mall Plantation in New Britain to Sio in Papua. Later with two others, murdered by supposedly friendly natives near Saidor, South east of Madang

VK5BW Phillips J.G

NX 170111. Cpl. AACC HQ. RAE 12 Div. D 6/4/41 - illness

VK6KS, Anderson K. S

S/Sgt. Signals Training Battalion. D 5/3/41 accidental drowning

VK2BQ Easton F.W

429240 F/O 100 Sqdn. RAAF. D 5/3/44 when Beaufort A9-480 crashed shortly after taking off from Vivigani strip Goodenough Island, New Guinea,

VK2VJ Jarvis V. J

300017. Cpl, 3 Sqdn RAAF. D 14/1/41. Middle East in ground battle.

VK2YK Abbott W

Only AW.M record is for Abbott W.R Cpl. 24 Inf Btn. KI A 6/6/45 Bougainville. No W. Abbot found in RAAF Records

VK2AJB Curle G.C

207732 Sgt 3 Sqdn D 17/3/41 in the Middle East as a result of a ground accident.

VK3GO Stephens T.

418036 F/O 518 Sqdn RAE. D 16/8/44. Died as a result of an accident in Scotland.

VK3OR Orr M.D

1700 F/O. AFHQ. D 29/7/41 at Kerang, due to illness.

VK3PL Colthrup J. F

3485 F/O. 3 W.A.G. School. D 21/2/42 when Tiger Moth AI 7-19 crashed at Maryborough aerodrome Q.

VK3UW Burrage J.A

400643 Sgt. 211 Sqdn RAE. D 21/2/42 Sumatra after a flying battle.

VK3VE Snaddon J.E

409361 459 Sqdn RAAF. D 14/7/44 in the Mediterranean as a result of a flying battle

VK4FS Starr E. J

5085 AC 1. 23 Sqdn RAAF. D 12/8/40 in a flying accident off the Queensland Coast

VK4PR Allen R

404945. P/O 13 Squadron RAAF. D 1/1/42 when, following engine failure, Hudson A16-29 dived into the sea off the Molucca Islands. 3 of the 4 crew members were killed.

VK5AF Ives C. A

300407 F/Sgt. Melbourne W/T Station. Died Ascot Vale 6/7/42 due to illness.

VK6JG Goddard J. E

420658 Fl/Lt 582 Sqdn RAF. D 8/9/44 over France, result of a flying battle

VK6PP Paterson R. P

260515 Fl/Lt 24 Sqdn. RAAF. D 19/1/42 as a result of a flying battle near Rabaul.

VK5BL James B.

May be either James B.G or James B.R. James B.G was W/O 406319 on 603 Sqdn RAF who died 2/5/43 in the Middle East during a flying battle. James BR 417490 was a F/O in 76 Sqdn RAF who died 22/1/44 in a flying battle over Germany

VK3PV Veall R. P

D. Darwin Harbour 19 Feb 1942 when MV "Neptuna" was bombed, caught fire, blew-up & sank.

VK3NG Gunter N.

Wireless Officer SS "Kowarra" D. 24/4/43 when ship torpedoed off Sandy Cape Q. with loss of 35 lives.

Of these 26 Members only 14 died as a result of an encounter with the enemy. Unlike Japanese Kamikaze airmen, none

Continued on page 22



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International Lighthouse/ Lightship Weekend

18th & 19th August 2002

Mike Dairymple, Co-ordinator

The 2001 International Lighthouse/Lightship Weekend took place from 0001 UTC on Saturday 18th August until 2359 UTC on Sunday 19th August, when around 354 (30 from VK) amateur radio stations were established at lighthouses and lightships in over 46 countries. In 2002 the period of the event is from 0001 UTC on Saturday 17 August until 2359 UTC on Sunday 18 August 2002. The event is NOT a contest, each station decides how they will operate their station regards modes and bands. Participants are not committed to being on the air during the entire period - only as much as they can.

There are no restrictions on aeriels or power. We wish operators to enjoy themselves and have fun whilst making contact with as many amateur radio stations as possible. Some operators say fun - 5,000 contacts - OK, but we request that stations take some time to work the slow operator, the newly licensed and QRP stations. As available space in many lighthouses is filled to capacity, our activity does not have to take place inside the tower itself. Field day type set-up at the light or other building next to the light is OK. Permission MUST be obtained from any interested parties.

The event is used to obtain maximum exposure for our hobby. We invite the press and, QTH permitting, also the public and try to underline the obvious parallel between the international aspect in lighthouses, lightships and amateur radio. We might catch a future radio amateur while creating goodwill for the hobby.

We use the event segment of the 5 'Classic' bands with a centre frequency if conditions are bad, at least we have

one place we can (try to) meet.

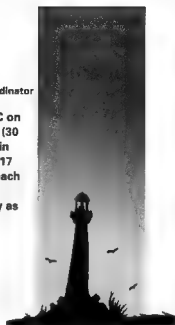
We request that the centre frequencies are not used as primary frequencies but as a last point of call to other participating stations.

CW	Freq	Centre
80m	3.510 - 3.540 kHz	3.521 +/-
40m	7.005 - 7.035 kHz	7.021 +/-
20m	14.010 - 14.040 kHz	14.021 +/-
15m	21.010 - 21.040 kHz	21.021 +/-
10m	28.010 - 28.040 kHz	28.021 +/-

PHONE	Freq	Centre
80m	3.650 - 3.750 kHz	3.721 +/-
40m	7.040 - 7.100 kHz	7.051 +/-
20m	14.125 - 14.275 kHz	14.221 +/-
15m	21.150 - 21.250 kHz	21.221 +/-
10m	28.300 - 28.400 kHz	28.351 +/-

Because it is NOT a contest you can operate on any authorised QRGs as per your licence.

To assist other stations we request that participating stations add 'LIGHT', 'LGT', 'LIGHHOUSE' or 'LIGHTSHIP' after their call. UK stations normally obtain a GB callsign with the letter L in the suffix to assist other stations



identifying them as a participating station in the event. So come and join us in the fun of the weekend, establish a station at a lighthouse, lightship or maritime beacon. The more the merrier. If you decide to join us in the fun could you let us know the callsign you will use, QTH and QSL information. This will enable me to notify other stations and the media of your participation. You can either use the on-line entry form at www.vk2ce.com/illw or e-mail me direct at gm4suc@compuserve.com. The list of entrants for this year is at: www.vk2ce.com/illw/2002.htm. Kevin, VK2CE is the Oceania coordinator for the event so if you have any questions please e-mail him at kevin@vk2ce.com.

73 Mike QM4BUC

Remembrance Day Contest

Continued from page 20

were under orders to sacrifice themselves, although some probably did. On the contrary, policy required them to survive wherever possible to fight another day. Most made it their ambition not to get to God too soon.

Death by natural causes (4) or death by accident (8) does not equate with 'Supreme Sacrifice' as understood on the Western Front in WW I.

While there is no doubt that there were many cases of extreme bravery by our servicemen, few of the casualties named

in the R.D Contest preamble approach the concept of a deliberate sacrifice of life.

There is a need to keep use of an emotive term such as "Supreme Sacrifice, in perspective.

An improvement in understanding why we honor our "silent keys" would occur if pre R.D Contest listings avoided inappropriate terminology.

QTH (R)

EDITOR'S Note. There may be a few errors in this which I have been unable to correct, information not available.

While I feel it is necessary to place those who died in an appropriate category; we really are celebrating the life and death of those who were involved in the war effort away from home. Like ANZAC Day celebrations we now, nearly 60 years on, remember all Radio Amateurs who died as a result of wars, at the time of the Remembrance Day Contest.

If you are able to provide any further information or correct any of the above please inform Col Harvey VK1AU or the Editor. I have noted that VK2BQ appears in two categories VK5UE

Log periodic for two metres

A log periodic antenna for two metres which covers 130 MHz to 170 MHz allowing coverage of adjacent frequencies to two metres was described by L B Cebik W4RNL in October 2001 QST. The antenna offers a computed free space gain of 9.2 dbi which is approximately 7 dbd equivalent to many 3 element yagis but with much greater bandwidth. The front to back ratio is in the 30 db or better region across the two metre band.

The antenna is shown in Fig 1. The antenna dimensions should be adhered to in order to achieve the performance. The boom is a two piece design made from two lengths of 0.75 inch 0.125 inch thick U section channel spaced 5/16th inch apart with insulated spacers. This is fairly critical as it forms the transmission line feeding the elements.

A 4 inch short circuit stub is connected at the rear element. This stub may be shortened to between 2 and 4 inches long to get an extra 2 db of front to back ratio at the expense of reducing the operating frequency range. In the antenna built by W4RNL the stub was made from a piece of RG59 and was shortened by the velocity factor so the physical length was shorter than the electrical length of 4 inches. Another

way of providing the stub is to extend the booms beyond the rear element and short them together 4 inches behind the rear element to form the stub.

The insulators used were plexiglass strips attached to the sides of the booms between elements 1 and 2 and elements 5 and 6. The spacing between the booms can be adjusted to get a better 2 metre band SWR but may result in worsening the wide band performance. The feed line is run along the boom and connected to the booms at the front.

As the booms form a feed line an insulated mounting plate is required to mount the booms to the mast. For vertical polarisation a non conducting mast is needed if it is attached mid boom or within the antenna structure. Similarly the feed line should not be run

parallel to the elements within the antenna structure.

The elements are attached at the centre with each half element attaching to one of the two booms so as to give balanced feed to each element. Element halves attach alternately to upper and lower booms. Element right hand halves of elements 1, 3, 5 attach to the upper boom and the left hand halves attach to the lower boom. The right hand halves of elements 2, 4, 6 attach to the lower boom and the left hand halves attach to the upper boom. This gets the feed line phasing correct for the elements.

Element attachment is shown in Fig 2. The elements are made of 3/16 th inch solid aluminium rod. The element ends are threaded and the element mounting holes in the booms are also threaded. Locking nuts are used on the elements to lock the halves in position. Additional nuts are used at the first and last elements to attach the feed and the stub. The element half lengths and spacings are given in Table 1. The element half lengths need to be increased by 3/8 th inch if the recommended mounting method is used.

Further information on wideband antenna designs can be found on W4RNL's website at www.cbik.com and at the online antenna magazine AntenneX website www.antennex.com. AntenneX is a paid subscription magazine and would be worth the subscription for those interested in antennas but for others there is a lot of free information on their website.

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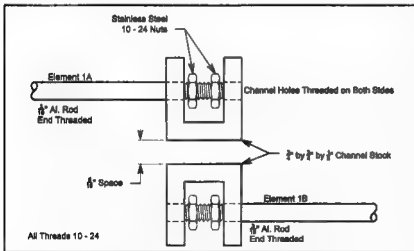


Fig 2. Cutaway End View Twin Boom Element Mounting System.



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Andy VK3IV

Technical Abstracts

Dimensions in inches

Element	Length	Half Length	Spacing	Distance from Rear Element
1	43.02	21.51	-	-
2	39.74	19.87	12.57	12.57
3	36.72	18.36	11.62	24.19
4	33.92	16.96	10.73	34.92
5	31.34	15.67	9.92	44.84
6	28.95	14.48	9.18	54

Dimensions in mm

Element	Length	Half Length	Spacing	Distance from Rear Element
1	546.3	273.2	-	-
2	504.7	252.4	319.4	319.4
3	468.3	233.2	295.1	614.5
4	430.8	215.4	272.6	887.1
5	398.0	199.0	251.9	1138.9
6	367.7	183.9	232.7	1371.6

Table 1. LPDA Dimensions Add 3/8th inch to element half lengths for recommended mounting.

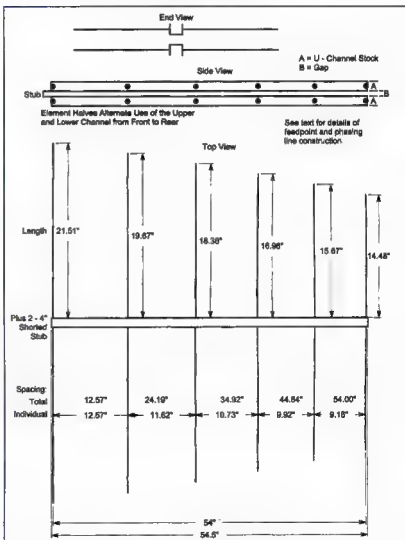


Fig 1. Outline Sketch and Dimensions LPDA

The ALARA Contest

Remember how successful the ALARA Contest was last year with its new conditions. Let's make this one just as good. Unfortunately our Contest is another one of these "use or lose it" situations. Unless we participate for the whole 36 hours and unless we send in our logs on time, we will lose it altogether.

The ALARA Contest will be run on the last full weekend in August, 24th, 25th. It will start at 0000Zulu on our Saturday morning and finish at 1159Zulu on our Sunday evening. By extending the hours this way we can have two evenings on 80 metres for the VK and ZL girls and the daylight hours when we can contact the DX girls. Remember we can repeat contacts with the same station on the

same band after an hour so you can keep in touch. Please participate for as much time as possible.

OMs are very welcome to join in what is as much a chat contest as a serious number exchanging contest. There is always time to talk. We hope there will be some Club stations involved as well, they are always fun.

Awards

This year there are two Awards for which contacts during the Contest may count. As usual the contacts count toward the ALARA AWARD for which you need at least 10 contacts with YL ALARA members from at least five Australian states. The new one is the "33 AWARD" offered in honour of the founder of YLRL, Ethel Smith, K4LMB.

For this you will need to contact at

least 33 YL stations during 2002. Surely you will get some of those during the ALARA Contest.

To obtain the ALARA Award submit your log, signed by two other amateurs to Jean Shaw, QTHR her OM, VK3CMS. For the 33 Award please submit logs to Jeanie Parker, WA6UVF, 28400 Vista Del Valle, Hemet, CA 92544.

Good Luck.

Good Morning!

I had some free time, so what did I do? I checked the computer to see if I'd heard from you!

I use to walk out to a box to retrieve mail. But I'd rather get it instantly, than wait on the snail!

Checking my e-mail is always fun!

I usually get a joke or greeting from someone.

I feel so blessed because on the other end,

I know I've connected with a friend!

When I've had a hard day and need to share,

Here I can find a friend who will listen and care.

And to this friend I hope I've let them know

That I am always there for them also!

Isn't it a strange kind of bond we form? It isn't exactly like the "norm"!

But where is it written, face to face we must be,

For you to be a very good friend to me??

That little joke or note, or just a simple "Hi",

Could be like a ray of sunshine from the sky!

So my E-Mail Pals, this is dedicated to you,

For all the smiles you have made anew!

Always remember this...

A smile is such an easy thing to pass along the way,

Like a ray of summer sunshine, On a somewhat gloomy day!!

Thank you for your emails!!

From Ella G0FIP

The ALARAMEET

Time is marching on. Plans are maturing. Please start sending your deposits or indicating your interest by leaving your names on our website or writing directly to Jean VK5TSX QTHR the call book. The website address is

<http://alarameet2002.8m.com>

When you contact the site, have a look at the forum section and have your say,

too, if you like. Click on any of the links to find out more about the lovely rural town of Murray Bridge.

Jean can also be contacted directly at vk5tsx@bigpond.com

We would love to hear from you. We already have a number of overseas YLs booked and hope that a number of VK5 YLs and OMs will come to some or all of the activities.

pleasure to exchange letters and greetings all around the world. It is quite common, but not obligatory that a sponsored YL will offer reciprocal sponsorship into their own YL organisation so you will get their newsletters at regular intervals, also. In this way you learn about the activities of other ladies with similar interests to yourself.

If you are an active HF operator you can arrange skeds with your sponsor, and these days it is very common to find that you and your sponsored girl are both on email which makes keeping in touch very much easier, of course.

The following verse expresses the pleasure of emails and sponsorship equally well.

Sponsorship

One of the activities of ALARA almost from its inception has been the sponsorship of DX members. At times ALARA has had almost more DX members than we have had local ones, but that is not a problem.

As soon as you join ALARA you can offer to sponsor an overseas YL. We have a Sponsorship Secretary, currently Maria VK5BMT, who is in contact with YL organisations in many countries. She will find you a sponsor if you like, but if you are in radio contact with a YL in any other country you can make arrangements through Maria and our Treasurer, Bev VK4NBC.

Each person sponsored into ALARA receives copies of our Newsletter every three months and you will find it a

Technical Abstracts

EWE Antenna

An interesting directional receiving antenna for 80 and 160 metres and also for Low Frequency appeared in the Antennas column of Peter Dodd G3LDO in Rad Com February 2002. The EWE antenna was originally described by Floyd Koonz WA2WVL in QST Feb 95. The design given was that of Stewart Cameron GM4UTP for use on 3.7 MHz. The EWE antenna is a directional receiving antenna which is small enough to fit into a suburban backyard unlike the beverage which needs to be a wavelength long or more.

The antenna is shown in Fig 3. The total length of the antenna is 12.08 metres. The vertical sections L1 are 3 metres and the horizontal section L2 is 6.08 metres long. The termination is 600 ohms which could be two 1200 ohm metal film or carbon resistors in parallel. The termination is non inductive. The

matching transformer is 12 turns trifilar wound on a T50 core.

The pattern is shown in Fig 4. The zero db scale is about -22 dbi. An amplifier may be required. The antenna design provides directivity at the expense of gain. The gain can be easily made up with an antenna amplifier. You would

need to use an amplifier design with good intermod performance. The antenna is wideband and the 160 metre response is also shown. An array of antennas could be used to provide multiple directions. The antennas could be oriented to null noise sources or to provide maximum signals from desired directions.

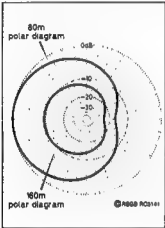


Fig 3. EWE Antenna of GM4UTP

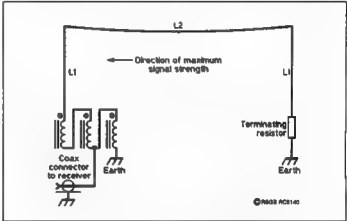


Fig 4. Polar Diagram of EWE Antenna. 0 db scale is approx -22 dbi. Both 80 m and 160 m response shown.

EMC

The EMC column of David Lauder G0SNO in Rad Com February 2002 had some useful information for station setup and EMC work on audio devices. The separation of the equipment and antennas from the house and other devices reminded me of the problems experienced with electronic devices in a household. In one case I heard of an electronic metering device responded in an unfortunate manner to the close proximity of an amateur station antenna system. The bill caused a reaction and some discussions ensued.

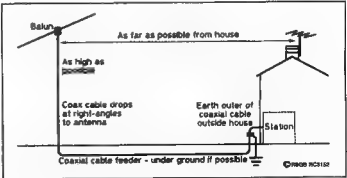


Fig 5. Good Radio Houskeeping. Keep the antenna and feeder system well away from the house.

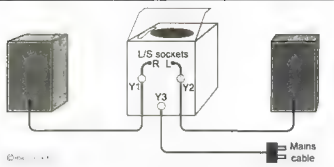


Fig 6. Fitting Ferrite Rings to an Audio System. Ferrites fitted at Y1, Y2, and Y3.

Good radio housekeeping is illustrated in Fig 5. The aim is to get the RF as far as possible from the house and possible EMC problems. This will also help ensure that the radiated RF is going towards making contacts and not causing problems for the operator.

The fitting of ferrite rings to choke RF and minimise EMC problems in audio equipment is shown in Fig 6 and Fig 7. Fig 6 is for a standard audio system and

illustrates fitting chokes on the mains and speaker leads to reduce RF getting to the active devices in the amplifier. The rings could be ferrite toroids or the snap on devices made for clipping onto cables. The ferrites are placed at Y1, Y2, and Y3.

In Fig 7 the treatment of the powered

loudspeakers of a computer are shown with treatment to minimise EMC problems. Once again the ferrites are placed at positions Z1, Z2, and Z3. The aim is to make the leads lossy to RF and stop them conveying unintended signals into the amplifier.

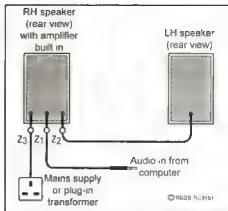


Fig 7. Fitting Ferrite Rings to Computer Speakers. Ferrites fitted at Y1, Y2, and Y3.

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Beyond Our Shores

David A. Pilley VK2AYD
davpi@midcoast.com.au

FCC proposes two new amateur bands!

Great news for ham radio in the USA! The FCC has proposed going along with ARRL's request for a new domestic (US-only), secondary HF allocation at 5.25 to 5.4 MHz. The FCC also is ready to permit operation on a 136 kHz "sliver band" in the low-frequency (LF) region. And, in response to a third ARRL request, the FCC has proposed elevating Amateur Radio to primary status at 2400 to 2402 MHz.

The FCC said the new 5 MHz band would help amateurs "better match their choice of frequency to existing propagation conditions." The band, if approved, would be the first new amateur HF allocation since World Administrative Radio Conference 1979 gave amateurs 30, 17 and 12 metres—the so-called "WARC Bands." Assuming the 5 MHz band eventually is authorized, it could be a few years before it actually becomes available.

The ARRL said its successful WAZXSY experiments demonstrated that amateurs can coexist with current users and that the band is very suitable for US-to-Caribbean paths. In

comparisons with 80 and 40 metres, the WAZXSY operation also showed the 60-metre band to be the most reliable of the three. The ARRL also argued that a new 150 kHz allocation at 5 MHz could relieve periodic overcrowding on 80 and 40.

If allocated to amateurs on a secondary basis, hams would have to avoid interfering with—and accept interference from—current occupants of the spectrum, as they already do on 30 metres. The band 5.250 to 5.450 MHz now is allocated to Fixed and Mobile services on a co-primary basis in all three ITU regions.

The ARRL asked the FCC for two LF allocations in October 1998—135.7 to 137.8 kHz and 160 to 190 kHz. The FCC said its action on one part of that LF request "proposes changes that would enhance the ability of amateur radio operators to conduct technical experiments, including propagation and antenna design experiments, in the 'low frequency' (LF) range of the radio spectrum."

Several countries in Europe and

elsewhere already have 136 kHz amateur allocations. The first amateur transatlantic contact on the band was recorded in February 2001.

Hams would be secondary to the Fixed and Maritime Mobile services in the 136 kHz allocation. The League said its engineering surveys suggest that hams could operate without causing problems to power line carrier (PLC) systems already active in that vicinity or to government assignments.

Unallocated Part 15 PLC systems are used by electric utilities to send control signals, data and voice.

ARRL's Chief Development Officer Mary Hobart, K1MMH, was among those welcoming the good news from the FCC. "This a wonderful example of the work ARRL conducts in Washington on matters important to the Amateur Radio community," Hobart said. "Thanks to the 10,000 hams who contributed so generously to the 2002 Defense of Frequencies Fund. The success of that campaign helps to make decisions like this possible."

(ARRL N/L Vol21.10 10/5)

Ham radio on the big screen

Amateur Radio is poised to hit the big screen yet again in a movie tentatively titled *Phenomenon II*. *Phenomenon* debuted in 1996 and featured John Travolta and his ham operator friend Forest Whitaker. In one scene, Travolta's character appears to be able to copy RTTY transmissions by ear. For the

original *Phenomenon* movie, ARRL provided several props for the ham radio shack. The sequel is still in the very early stages of development. A researcher working on checking facts in the script contacted ARRL to ask if operators actually used the term "CQ" when initiating contacts! She also told ARRL

Media Relations Manager Jennifer Hagy, N1TDY, that the possibility exists for the creation of a television series based on the *Phenomenon* movies. No further details were immediately available.

(ARRL N/L Vol21.10 10/5)

Vehicle security

Having heard of stolen vehicles being recovered by activating their cellphone, this true story took my eye.

A ham recently posted a message on the Tucson Amateur Packet Radio APRSSIG e-mail list asking if anyone had received any position packets from the APRS station installed in his vehicle. It seems that his vehicle was stolen and if the perpetrators happened to turn on the station equipment, the position packets might help locate the vehicle.

It was suggested he check

www.findu.com/ to see if his mobile APRS station's position packets had been relayed to the Internet. After checking "findu", he discovered that one of the station's position packets was indeed relayed to the Internet. This clue led authorities to the location revealed by the position packet and resulted in the arrest of the perpetrators and the recovery of various items of stolen property.

(June QST)

Precision APRS Test

According to the ARRL News Letter 25/5, the Air Force Research Labs in the USA planned an experiment using Amateur Radio operators as an auxiliary line of defence. The Precision Emergency Automated Position Reporting System test would consist of 2 aircraft flights. During the flight the aircraft will transmit a distress message. Amateurs will, upon receipt of the message, either email or phone the Air Force. The objective of the exercise will be to measure the timeliness and accuracy of the reports.

The Golden Antenna Award

In Germany there is a town which supports Amateur Radio. It is Bad Bentheim, close to the border with the Netherlands. In 2001 Amateur Radio enthusiasts from all over Europe met at the German-Netherlands Amateur Radio Day for the 33rd time.

Since 1982 the presentation of the Golden Antenna of the town of Bad Bentheim has been one of the highlights

of the gathering. It is an award given to Amateur Radio operators who have helped people in emergencies caused by accidents or natural catastrophes. Recipients have been from Germany, Netherlands, Bolivia, India, Rumania, Turkey, Switzerland, etc.

If you know of any Amateur Radio enthusiast or group whose utilisation of

Amateur Radio technology is connected to humanitarian work then Bad Bentheim would like to hear from you. Write to PO Box 1452, Bad Bentheim 48445, Federal Republic of Germany, or e-mail veldhuis@stadtbadbentheim.de. A jury will evaluate the nominations.

(DC9XU@DB0SM.#NDS.DEU.EU)

Promoting amateur radio

Some time back I wrote about the various places that Radio Amateurs in the USA were showing off their Amateur Radio. I was looking through June QST and noticed a few such as "RC Cola & Moon Pie Festival" in Tennessee, "Bread & Honey Festival" in Ontario, "Commemorating the lives of President Reagan and Mrs Nancy Reagan" in California, "Spring Bison Festival" in Pennsylvania, "International Washboard

Festival" in Ohio. But the one that really caught my eye was in Lander, Wyoming, called "Spring Time Comes Late in the Wind River Mountain of Wyoming". That should give you some thoughts. My local club recently had a booth at the "Gray Mardi Gras" (yes, Gray as in hair colour – just for the oldies) and were surprised at the interest Amateur Radio created, especially the Morse transmissions.

Wet string antenna

"Antenna here is a piece of wet string". I guess we've all thought about it at some time! Allan Messenger, G0TLK decided last December to give it a try. Using a 9 metre portable mast with a remote auto ATU and a fairly comprehensive ground system, he slung up 13 metres of string soaked in strong brine as an end-fed sloper antenna. The length was totally

random. The results were excellent contacts on 10, 15, 20 and 40 metres using 20 to 30 watts SSB. He commented that tap water didn't work! Just don't turn the power up or the antenna will dry out! Have you tried any new antennas lately?

(RSGB March RadCom)

Dayton Ohio Hamvention USA

Another era past in May with the Dayton Hamvention 2002 being the 50th anniversary. In spite of chilly weather, the 3 day event drew the usual crowd of between 25,000 and 30,000 visitors.

Among the technical highlights, Yaesu had their new FT-897 on show, which is a pumped up version of the FT-817. Ten-Tec displayed their new Orion transceiver, which is replacing the OMNI. ICOM debuted its new IC-2720 dual-band mobile and its D-Star digital system. Elecraft showed off its new 100 W K2 transceiver.

To top off the 50th anniversary, Mark Elliot, N8WZV and Cyndi Kreiger were married at the Hamvention. Now that should put some ideas into the Field Day organisers here in Australia.

(ARRL N/L 25/5)

WRC 2003 Donations

The following are some of the donations that have been received so far.

On behalf of the Directors and Federal Council I would like to thank you all very much for your generosity.

Your donations are important to us to ensure that the interests of amateur radio are properly represented at WRC 2003

Ernest Hocking VK1LK - Federal President

L70067	VK2BMS	VK2KJM	VK2YN	VK3BTQ	VK3JQ	VK3XEF	VK5CJ	VK5YG	VK8VM
VK1COB	VK2BPN	VK2KJP	VK2ZCZ	VK3BWS	VK3JVT	VK3YEV	VK5CL	VK5ZBD	VK8PW
VK1KEP	VK2CWI	VK2KUR	VK2ZGS	VK3CHN	VK3KAV	VK3ZAM	VK6FD	VK5ZLW	VK8OZ
VK1XAI	VK2DCD	VK2LV	VK2ZHP	VK3CHX	VK3KS	VK3ZAN	VK5FF	VK8ABM	VK6SW
VK2AAB	VK2DJM	VK2LY	VK3ABK	VK3CTN	VK3KTJ	VK3ZNR	VK5HN	VK8AFW	VK6VZ
VK2ABE	VK2DKF	VK2MW	VK3ABT	VK3DBX	VK3KTO	VK3ZCY	VK5JAZ	VK8AOK	VK6XME
VK2AFU	VK2DLB	VK2OY	VK3AL	VK3DCF	VK3KVT	VK3ZGZ	VK5MX	VK6BMT	VK6YF
VK2AHP	VK2DV	VK2PH	VK3AMD	VK3DSS	VK3NJ8	VK4BBL	VK5NNN	VK6CSW	VK7AK
VK2ALZ	VK2DWW	VK2RX	VK3AQ	VK3DVT	VK3PH	VK4MAJ	VK5OV	VK6CU	VK7FJ
VK2AMT	VK2DYP	VK2TBW	VK3AVY	VK3ED	VK3PR	VK4NJQ	VK5QC	VK6CW	VK7KBE
VK2ATU	VK2EHZ	VK2TPH	VK3AXT	VK3EUU	VK3QL	VK5AMR	VK5RK	VK6HH	VK7KMH
VK2AUD	VK2EJP	VK2TRH	VK3BFG	VK3FPL	VK3UU	VK5BA	VK5TV	VK6JAH	VK7PP
VK2AVQ	VK2FLT	VK2VC	VK3BHS	VK3J	VK3VQ	VK5BGL	VK5XE	VK6JP	VK7TW
VK2AY	VK2GR	VK2XMF	VK3BML	VK3IQ	VK3WYN	VK5BJE	VK5XQ	VK6KHC	VK8BK
VK2BER	VK2IGS	VK2XRC							

VK1 Notes

Forward Bias

As most of us know, both of our Vice-Presidents went to the Federal Convention that was held on 17, 18, and 19 of May 2002. Alan Hawes (VK1WX) went as an observer, and Phil Longworth (VK1ZPL) went in his capacity as Alternate Federal Councillor. They both reported about the Convention during the General Meeting on May 26. Those who were at this meeting were fully informed about what happened there and the decisions that were made. Other members will have to wait until the Federal Secretary publishes his report in this month's AR.

The first of the regular daytime meetings that Tony Bennett (VK1TB) has started occurred on Tuesday, June 4. During the meeting, it was decided to get together on the second and fourth Tuesday of the month. These meetings will be popular because some of our members have plenty of time on their hands and love an opportunity to talk to other members without having to worry about the problems of traveling at night. How do you get to the Parks &

Garden Depot, you ask? Take Bus 24 from the Woden Interchange and get off at Bus stop No.1 in Lambrigg Street, Farrer. Walk across the Oval to the Depot. It is that easy.

The agenda for these meetings will be announced during the regular Thursday evening broadcasts of VK1WL.

Who is doing what? Waldis Jirgins (VK1WJ) is experimenting with a Directional Discontinuity Ring Radiator (DDRR) antenna and a Crossed-Fields Antenna (CFA) and is having lots of fun. Dave Gibbons is also having fun with CFAs, particularly the loop types and having much success with it. Ray Reinholdt (VK1PRG) is busy collecting the ARRL's QST magazines from 1947 onwards until 1970. He is planning to write an article about the beginnings of SSB and FM in the Amateur Radio Service. If you want a copy of an article in any of his collection of QSTs, he is QTHR.

Lawrence Aldridge passed the Novice exam last month (now VK2HLA) and so

Peter Kloppenburg VK1CPK

did Harry Watson-Smith. Neil Pickford (VK1KNP) is presently re-programming his station using Linux. Kerry Richens (VK1TKR) and Peter Ellis (VK1KEP) are building 2.4 GHz down-converters for the AO-40 satellite. Olaf Moon (VK1JDX) and Mike Jenkins (VK1MJ) are planning for a radiocommunications museum and Ernest Hocking (VK1LK) is crystallising his thoughts regarding Federal WIA issues. Peter Kloppenburg (VK1CPK) has built himself an electronic lightning detector and is eagerly awaiting the next electric storm. Alan Hawes (Vice-President) is looking for ways to present the statistics of the recent members' survey so that all of us can understand them. Gilbert Hughes (VK1GH) is holidaying in Italy and learning how to say 'CQ DX' in Italian. Peter Ellis is organising for the next Canberra Symposium (Can.Tech. '02), that will be held near the end of the year.

The next General Meeting will be held at Scout Hall in Longerenong St, Farrer on July 22, 2002. Cheers.

VK2 Notes

compiled by Pat Leeper VK2JPA

Some members have expressed concern as to whether the illegality of using mobile phones while driving extends to the use of mobile amateur radio transceivers. Enquires made with the NSW Road Transport Authority produced a definite "OK", with the advice to consult Australian Road Rule number 300 on the RTA website.

Paragraph 2 of this rule states: the definition of "mobile phone does not include a CB radio or any other two-way radio".

We have a list of councillors and their responsibilities for the period 2002-2003.

Terry Davies VK2KDK President; Chris Flak VK2QV Bookshop Manager; Owen Holmwood VK2AEJ Secretary; Brian Kelly VK2WBK NTAC; Geoff McGrorey-Clark VK2EO QSL Bureau; Chris Minahan VK2BJ Treasurer; Terry Ryeland VK2UX Education Officer; John Turner VK2WRT Trash & Treasure.

If you have any problems, contact the officer responsible for assistance. Phone

the office on 02 9589 2417 - leave a message if the office is not manned and we will get back to you.

The next Trash & Treasure will be on Sunday 28th July. Come along and meet old friends, pick up a bargain or two, or set up a stall to move some of your old treasures. Sellers are welcome at 12 noon, and buyers at 12.30pm in the car park of the Institute beneath 109 Wigram Street Parramatta.

That's all for this month, see you next time.

VK3 Notes

By Jim Linton VK3PC

WIA Victoria web site: www.wiavic.org.au

email: wiavic@wiavic.org.au

WIA Victoria Council

At its meeting on 11 June, the following office bearers were elected for the coming period:

President	Jim Linton VK3PC
Vice-President	Murray Price VK3JZ
Secretary	John Brown VK3JJB
Treasurer	Jim Baxter VK3DBQ

As this is the last year of your current Council's three year term of office, election of a new Council will take place at next year's Annual General meeting. To facilitate this, Council* appointed Barry Wilton, VK3XV as Electoral Officer.

*The Articles of WIAVictoria state that the appointment of an Electoral Officer is to be made at an AGM, however as an Electoral Officer is normally only required for a short time once every three years, the AGM held 28 May 1997 delegated this responsibility to Council. This delegation was confirmed again at the AGM held 31 May 2000 and has been exercised with this appointment.

IARU Region 3 Amateur Radio Direction Finding Championships in 2003

A Progress Report from Greg Williams VK3VT, President Victorian ARDF Group to the WIA Victoria Council indicates that planning is well underway for this important event.

It is to be hosted by the Wireless Institute of Australia and will be held in the Ballarat area from Friday 28 November to Wednesday 3 December 2003.

Up to 100 participants from member societies in Region 3 including Japan, Korea, China, Mongolia, New Zealand,

and Australia, as well as guest competitors from other Regions are expected to attend.

WIA Victoria is sponsoring this event and assisting the organising committee with financial backing.

New EMR Regulations

The mandatory electromagnetic radiation (EMR) limits on all apparatus licences, including those for amateur stations, were due to begin on 1 July.

Recently received correspondence indicates that there is still some misinformation circulating amongst the amateur community regarding the EMR regulations.

A factual report on the requirements appeared in last month's Amateur Radio magazine, and is available on the WIA Victoria web-site.

It is important to repeat that EMR regulations are applying to all types of transmitters. They have a minimal impact on the Amateur Service, and in fact give all radio amateurs a measure of protection against ill-informed comments about radiation.

New Members

Council approved nine new applications for membership at this meeting. This brings the total new members for the year to forty-eight which is on target to achieve our goal of returning WIA Victoria to a growth situation after a number of years of declining membership.

It is interesting to note that a number of the new applicants were previously members who had let their membership lapse, but who have now decided to rejoin.

Council would like to think that this surge in new members is in response to

improved communication of the work that is being done at both the local and federal and international level to protect member's privileges and advance the hobby of Amateur Radio.

Repeater/Beacon Update

Internet Repeater Linking (IRLP)

There is quite a lot of activity underway on the IRLP front.

- Gippsland Gate Radio and Electronics Club has applied for a 70 cm frequency for a new IRLP repeater to be sited on the fringe of the SE metropolitan area.

- Twin Cities Radio and Electronics Club have advised that they are supporting the installation of IRLP via the 70 cm repeater VK3RNE.

- Eastern & Mountain Districts Radio Club are continuing their IRLP project via VK3ROU and hope to be 'on the air' soon.

- Geelong Amateur Radio Club is working to get their 70 cm IRLP repeater VK3RGL back on the air after a recent lightning strike.

- Bass IRLP Amateur Radio Group has been issued with the Club Call VK3IRL

Interference on VK3RML - This fault associated with a nearby ethnic language broadcast transmitter has been reported to the ACA and is being followed up to try resolve the problem.

VK3RMH 6 m Beacon - North East Radio Group have advised that their 6 m beacon is not operating at present. A new frequency within revised band planning is being sought. Due to the narrowness and nature of propagation on that band, there is a limit on the number of beacon channels per state.

PLAN AHEAD

Remembrance Day Contest

17 & 18 August 2002

ALARA Contest

24 & 25 August 2002

InstantTrack bug fixed

Paul Williamson writes that an annoying bug which appeared in the first open-beta version of InstantTrack ver-1.54 has been fixed.

It was not possible to set the spacecraft attitude to "local-vertical". This is the setting needed for nadir-pointing satellites, ie. satellites which have their antennas pointing towards the centre of the Earth at all times and therefore have a constantly changing 'attitude' for the purposes of squint-angle calculations.

Download version 1.55 of InstantTrack from the AMSAT web site to fix the problem. While we're on the subject, there's a new tutorial available on the InstantTrack web pages. The page shows you how to set up the free program cURL to automatically download Keplerian elements from the Internet and update

InstantTrack's database every week. I haven't tried this myself, as InstantTrack is not my primary tracking program. The tutorial works with Windows from 95 to XP. The following URL will lead directly to the download page. <http://www.amsat.org/amsat/instanttrack/curl/>

Six-monthly Update of Operational Amateur Radio Satellites

Here is a summary of the amateur radio satellites, which are currently available for regular operations in this part of the world.

This information is compiled from many sources including personal observations of my own and my friends. The information is as current as I can obtain at the time of writing. It relies heavily on the day-to-day happenings on the AMSAT-NA e-mail bulletin board and by listening to and operating the satellites themselves. But it must be remembered that the amateur radio satellite business is very dynamic and changes may occur at any time. The only

effective way to keep up-to-the-minute is to subscribe to the AMSAT-BB and the Amsat-News-Service and receive daily/weekly e-mail information "as-it-happens".

NOTE: From time to time satellites are launched which are designed to be operational only over certain parts of the world. AO-27 and more recently the Saudi-sats are examples and there have been many others. They will not be included in this summary if they are not

available to VK operators. Likewise there are a number of amateur radio satellites, which have failed either partially or totally but are still in orbit. Their keplerian elements are included in the sets available from the usual sources but again I have not included them in this list. If you want information on these birds it can usually be obtained from the AMSAT web site or by subscribing to the AMSAT news service or bulletin board.

The International Space Station

Not an "amateur radio satellite" of course but ISS has carried on the tradition of the Russian space station MIR in giving astronauts an opportunity to participate in amateur radio operation during their leisure time and of course to enable amateur radio operators world wide to make contact with real live astronauts in orbit.

Many astronauts have obtained amateur radio qualifications during their training and most continue their interest after their tour of duty in space has ended. The ISS equipment allows FM voice and packet operation including UI digipeating for APRS activity. Remember the ISS crewmembers are very busy. They have a demanding daily schedule and amateur radio is at best a leisure-time activity. The daily crew schedule which gives an idea when crew members have free time and may be available for Amateur Radio operations can be found

at: <http://spaceflight.nasa.gov/station/timelines/2001/may/index.html>.

You would do well to consult this site before planning to work with ISS. Otherwise you could waste a lot of time listening or worse, calling to no avail. At times the packet radio equipment may be switched into automatic mode, either digipeating or mailbox. When the crewmembers are using voice communication via the amateur radio station, they will use the following callsigns:

Callsigns

U.S. callsign: NA1SS
Russian callsigns: RS0ISS, RZ3DZR
ISS frequencies for packet and voice
Worldwide packet uplink:
145.990 MHz
Region 1 voice uplink:
145.200 MHz
Region 2/3 voice uplink:
144.490 MHz
Worldwide downlink (both modes):
145.800 MHz
TNC callsign NOCALL

The high altitude elliptical orbiters

AO-10

Uplink 435.030 to 435.180 MHz CW/LSB
Downlink 145.975 to 145.825 MHz CW/USB
Beacon 145.810 MHz (unmodulated carrier)

Launched: June 16, 1983 by an Ariane launcher from Kourou, French Guiana.

Status: Semi-operational, mode-B. AO-10 has been locked into a 70-cm uplink/2 metre downlink configuration for several years since the on-board computer failed due to radiation damage. AO-10 has been undergoing something of a 'rediscovery' since the launch of AO-40, which has attracted a lot more interest in the high orbit birds.

Unlike the Low-Earth-Orbiters (LEOs) the high-orbit satellites are capable of long range, almost hemisphere-wide DX. Over the years many stations notched up their satellite DXCC on AO-10 and AO-13 and today many are doing the same with AO-40. Remember to listen to the beacon regularly while you are operating AO-10 and cease transmission if there is any frequency 'wobble' as you talk or key-down.

Stacey Mills maintains an informative web site for AO-10, which is now our longest serving operational amateur radio satellite. Since the demise of the on-board computer the attitude of AO-10 is unknown and therefore the squint angle cannot be calculated. From time to time an estimate is made of the attitude. Visit Stacey's site at: <http://www.cstone.net/~w4sm/AO-10.html> for the latest information.

AO-40

Launched: November 16, 2000 aboard an Ariane 5 launcher from Kourou, French Guiana.

Status: Currently, the U/L1 to S2 passband is active.

Uplink

U-band 435.550 - 435.800 MHz CW/SSB

L1-band 1269.250 - 1269.500 MHz CW/SSB
L2-band 1268.325 - 1268.575 MHz CW/SSB

Downlink

S2-band 2401.225 - 2401.475 MHz CW/SSB

AO-40 continues to provide good DX, reliable signals and wide footprints. Commissioning is continuing with several important milestones to be passed soon. Due to this commissioning transponder operations may be interrupted at short notice. You should check the AMSAT web site for the latest information before setting up to operate AO-40.

continued next page

The AMSAT group in Australia

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an e-mail mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.885 MHz at 1000utc with early check-ins at 0945utc. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900utc with early check-ins at 0845utc. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
 GPO Box 2141,
 Adelaide, SA, 5001.

Graham's e-mail address is: vk5agr@amsat.org

Cable, Connectors, Tools



- RG58C/U Belden 8259 @ \$0.90 per metre
- RG213/U Belden 8267 @ \$4.45 per metre
- RG8/U Belden 9913 Low Loss @ \$5.15 per metre
- RG8/U Belden 9913F7 High Flex Low Loss @ \$5.55 per metre
- RG8/U - RF400 Belden 7810 Low Loss Sweep Tested to 6000MHz @ \$6.30 per metre



- RG58: B80-006 UHF connector (M) @ \$7.65 each
- RG8/213: B80-001 UHF connector (M) @ \$8.80 each
- RG213: B30-001 N connector (M) @ \$9.10 each
- RG8: B30-041 N connector(M) @ \$14.00 each

TOOLS

- Coax Cutters: C.K. @ \$40.00 each
- Strippers: ● Ideal - RG58 @ \$33.00 each
- RG8/213 @ \$53.00 each

* All prices include GST
 * Minimum order value \$50

payable by Visa, Mastercard, Bankcard or Money Order

* Packing and Delivery \$15 within Australia (Outside Australia P.O.A.)



ABN 62 088 051 030

email - sales@elektron.com.au or Phone: (03) 9761-3207
 Elektron Pty Ltd, Unit 2, 14 Melrich Road, Bayswater, Victoria 3153.

The Russian RS series

RS-12/13

Uplink 145.910 to 145.950 MHz CW/SSB
Downlink 29.410 to 29.450 MHz CW/SSB
Beacon 29.408 MHz
Launched: February 5, 1991 aboard a Russian Cosmos C launcher

Status: RS-12 was re-activated in mode-A on January 1, 2001.

Local reports indicate that mode-K/T has been operating for a month or so at the time of writing. RS-12 has been giving good results with strong signals being received on the 10m downlink. Simple wire dipole antennas are quite suitable for 15 and 10m operations on the RS birds although many operators use tri-band HF yagis. A suitable uplink antenna for mode-A is a 2m _ wave ground-plane or a _ wave vertical for low elevation passes. The lower elevation passes will give the best DX but for most purposes the _ wave ground-plane antenna will give best all-round results. Try to use a flat metal screen of some kind rather than 3 or 4 radials for the ground plane. Remember, the RS satellites do not invert the signal so if you uplink on USB, the downlink will also be USB and if you uplink near the top of the passband, your signal will come out near the top end of the downlink passband. It's not a bad idea therefore to start out near the middle, ie. 145.930 MHz and listen for your downlink signal around 29.430 MHz. Listen first to the beacon on (or near) 29.408 MHz and only use

enough uplink power to match the signal strength of the beacon. Don't waste your time trying to transmit a signal through the satellite until you can hear the beacon loud and clear. RS-12/13/15 afford the newcomer an easy way to "learn the ropes" and to start out in satellite operation. The latest information on RS-12 and RS-13 can be found on the AC5DK RS-12/13 Satellite Operators page at: <http://www.qsl.net/ac5dk/rs1213/rs1213.html> If RS-12 whets your appetite, a good book like the "Satellite Experimenter's Handbook" will serve you well. For a more detailed look at "hands-on" operating hints on these satellites, see Peter VK5ZGP's contribution in the February and March 2002 columns.

RS-15

Uplink 145.858 to 145.898 MHz CW/SSB
Downlink 29.354 to 29.394 MHz CW/SSB
Beacon 29.352 MHz (intermittent)
SSB meeting frequency 29.380 MHz (unofficial)
Launched: December 26, 1994 from the Baikonur Cosmodrome

Status: Semi-operational, mode-A, using a 2-meter uplink and a 10-meter downlink. Dave, WB6LLO, has operating information for RS-15 on his web site. In addition to satellite data, antenna information for mode-A operation is also featured. The WB6LLO web site URL is: <http://home.san.rn.com/dogulmont/uploads>

The Japanese FUJIs

FO-20

Uplink 145.90 to 146.00 MHz CW/LSB
Downlink 435.80 to 435.90 MHz CW/USB
Launched: February 07, 1990 by an H1 launcher from the Tanegashima Space Center in Japan. Status: Operational. FO-20 is in mode JA (analog).

FO-29

Launched: August 17, 1986, by an H-2 launcher from the Tanegashima Space Center in Japan.
Status: Operational Voice/CW/Mode JA (analog)
Uplink 145.90 to 146.00 MHz CW/LSB
Downlink 435.80 to 435.90 MHz CW/USB

The packet radio satellites

(store and forward 38k4 baud)

UO-36

Nothing has been heard of this satellite for a year at the time of writing but it's worth keeping an eye out in the hope of its return to service. No pertinent announcements have been forthcoming from Surrey University.

Uplink 145.960 MHz (9600-baud FSK)
Downlink 437.025 MHz 437.400 MHz
Broadcast callsign UO121-11
BBS callsign UO121-12
Launched: April 21, 1999 by a Russian launcher from the Baikonur Cosmodrome.

UO-36 carries a number of imaging payloads, digital store-

Digital Mode JD

Uplink 145.850 145.870 145.910 MHz FM
Downlink 435.910 MHz 1200-baud BPSK or 9600-baud FSK
Callsign 8J1JCS
Digitaltalker 435.910 MHz

As with the RS series, beginners on the Fuji satellites would do well to look at the "hands-on" operating hints for these satellites in Peter VK5ZGP's contribution in the February and March 2002 columns.

and-forward communications and mode L/S transponders.

UO-36 was responsible for the most spectacular earth imaging seen from any of the Surrey satellites.

Further information on UO-36 may be available from: <http://www.sstl.co.uk/>

MO-46 (TIUNGSAT-1)

Uplink 145.850 or 145.925 MHz 9600-baud FSK
Downlink 437.325 MHz
Broadcast callsign MYSAT3-11
BBS callsign MYSAT3-12

Launched: September 26, 2000 aboard a converted Soviet ballistic missile from the Baikonur Cosmodrome.

Status: Operational at 38k4-baud FSK

TiungSat-1 is Malaysia's first micro-satellite and in addition to commercial land and weather imaging payloads, it offers an amateur radio downlink. The amateur radio operations on MO-46 like those of UO-36 centre around the imaging payloads. Often stunning quality earth images are available for download from these satellites. MO-40 and UO-36 are normally in idle-mode with the transmitter turned off to conserve power. Amateur radio operators can turn the transmitter on when it comes into range but it requires additions to your Windows system (WiSP) registry. The registry alterations are listed on the ASMAT web site but if you have trouble locating the instructions I can supply a copy. Remember also that UO-36 and MO-46 both operate at a downlink speed of 38400 (38k4) baud and this requires broad-banding alterations to be made to the IF chain of most receivers. Details are available from <http://www.symek.com>

(store and forward 9600 baud)

UO-22

Uplink 145.900 or 145.975 MHz FM 9600-baud FSK

Downlink 435.120 MHz FM

Broadcast callsign UOSAT5-11

BBS callsign UOSAT5-12

Launched: July 17, 1991 by an Ariane launcher from Kourou, French Guiana.

Status: Operational

UO-22 is operational with 100% downlink efficiency most of each pass. At the time of writing UO-22's only active uplink appears to be 145.900 MHz. The other 'normal' uplink is 145.975 MHz but this not operating despite the telemetry bulletin saying it should be. Try both frequencies if you have trouble uplinking to UO-22. It is the last of the original 'Surrey' 9600 baud digital birds to be still giving good performance. KO-23 has not been heard reliably for a couple of years and KO-25 has been very unreliable for many months. Indications are that neither of these satellites will be recovered. For the sake of brevity I have removed them from this list but if you want more details you can go to the University of Surrey web site and follow the links from there.

(store and forward 1200 baud)

AO-16

Uplink 145.90 / 145.92 / 145.94 / 145.96 MHz FM
(using 1200-baud Manchester FSK)

Downlink 437.025 MHz SSB (Raised Cosine-BPSK 1200-baud PSK)

Mode-S Beacon 2401.1428 MHz

Broadcast callsign PACSAT-11

BBS callsign PACSAT-12

Launched: January 22, 1990 by an Ariane launcher from Kourou, French Guiana.

Status: Semi-operational, the digipeater command is on and AO-16 may be used to digipeat APRS packets.

IO-26

Uplink 145.875 145.900 145.925 145.950 MHz
FM (1200-baud)

Downlink 435.822 MHz SSB

Broadcast callsign ITMSAT-11

BBS callsign ITMSAT-12

Launched: September 26, 1993 by an Ariane launcher from Kourou, French Guiana.

Status: Semi-operational, the digipeater function is on and open for APRS users.

(Dedicated APRS-digipeating 1200 baud)

PCSAT NO-44

Uplink/downlink 145.827 MHz 1200 baud AX-25 AFSK
via PCSAT-1

Aux/Uplink 435.250 MHz 9600 baud
via PCSAT-2 (off)

APRS Downlink 144.390 MHz (Region 2)

Launched: September 30, 2001 aboard an Athena-1 rocket from the Kodiak, Alaska launch complex.

Status: Operational

WB4APR reports PCSat "appears to be in great shape even though it has now (mid-May) entered another maximum eclipse period which should last for about a month. Eclipse periods happen periodically and the only restriction at these times is that we ask for no unattended overnight beacons to be left running."

PCSat is a 1200-baud APRS digipeater designed for use by stations using hand-held or mobile transceivers. Downlinks feed a central web site <http://pcsat.aprs.org>. The APRS-equipped PCSat was built by midshipmen from the U.S. Naval Academy under the guidance of Bob Bruninga, WB4APR.

(Beacon and telemetry only - 1200 baud)

UO-11

Downlink 145.825 MHz FM (1200-baud AFSK, special modem required)

Mode-S Beacon 2401.500 MHz (very useful for testing S-band receiving equipment).

Launched: March 1, 1984 by a Delta-Thor rocket from Vandenberg Air Force Base in California. During the past year, as in the past 18 years, OSCAR-11 has operated continuously on both VHF and S band, with very little attention required from the ground station. The attitude is controlled solely by the gravity gradient boom leaving the satellite's antennas earth-pointing at all times. As a result, signals are reliable and strong. Truly a remarkable record of achievement.

The operating schedule remains unchanged.

ASCII status, summary of operating conditions (210 seconds)

ASCII bulletin (60 seconds)

BINARY SEU, Single Event Upset summary (30 seconds)

ASCII TLM, live telemetry (90 seconds)

ASCII WOD Whole Orbit TLM Data stored for up to 3 orbits (120 seconds)

ASCII bulletin (60 seconds)

BINARY Engineering system housekeeping telemetry (30 seconds)

UO-11 has been a remarkably reliable tool for schools and colleges over the past 18 years. It requires minimum receive capability and has introduced countless students to space science via the brrrrrrp-brrrrrrp of its telemetry beacon. A real success story from the University of Surrey in England. How much electronic equipment do you have in your shack that has been switched on and operating continuously for 18 years?

continued next page

Intruder Watch May 2002

Henry VK8HA
vk8hs@octa4.net.au or Box 619, Humpty Doo, N.T.

This month thanks to Tom Walker VK4BTW and his Intruder Watchers. We will miss his reports and we send him our best wishes.

DX conditions at present are great so many Chinese CB and SSB stations can be heard on 28-29 MHz. Indonesian intruders on SSB can be heard on 21

MHz. Our lack of activity gives these intruders a free go.

Thanks Karl VK6XW for the report on the jamming of the VK6 Travelers Net.

FREQ	.DATE	TIME	EMM	DEGS	RST	RPTS	DETAILS
03500	dly	ave	pkt	360	#1	15	Chinese pkt.
03560	dly	1200	A3	—	#6	15	Pyong Yang B/cast Stn.
07000	dly	ave	USB	—	S9	50	Indon Crims
07015	dly	ave	USB	—	S9	50	Indon Crims
07025	dly	ave	USB	—	S9	50	Indon Crims
10105	dly	ave	USB	—	S9	50	Indon Crims
14000	dly	ave	USB	—	S9	50	Indon Crims also using LSB
14005	dly	ave	USB	—	S9	50	Indon Crims
14005	1105	2250	—	330	S3	30	Buzz Saw noisy Xmiss
14005	1005	1208	USB	—	S9	30	Several Male Chinese
14008	1305	1105	USB	360	S9	10	Two Chinese Males Short Messages
14010	1105	2255	AM	360	S1	5	UI B/cast Station 14017
14038	1305	0820	Buzz	300	S1	10	Buzz-Saw N oise + SS3
14040	1505	1300	USB	360	S9	—	Big MOB SHOUTING
14052	1305	0823	Pkt	300	S8	20	'Chou Schriber'
14080	1005	1210	USB	360	S9	mny	same up every 5k
14081	1305	0825	BUZZ	300	S1	mny	Buzz Saw Noise
14080	dly	ave	SSB	—	S9	mny	Indon Crims.....14100 (messes)
14100	dly	ave	USB	—	S9	189	Indon Crims
14105	dly	ave	BUZZ	300	S8	mny	UL Buzz Saw Emission
14110	dly	ave	USB	—	S9	mny	Indon Crims
14115	dly	day	USB	—	S9	dly	Indon Crims Jamming VK6 Travellers NET
14116	dly	day	USB	—	S9	dly	Indon Crims every DAY
14117	dly	day	USB	—	S9	dly	Indon Crims
14120	dly	day	USB	—	S9	dly	INDON CRIMS JAMMING VK6 TRAVELLERS NET
14121	1305	0830	PKT	300	S9	10	Chinese 'Chow-Schriber'
14125	1305	0830	USB	—	S9	—	Indon Crims In TIMOR
14175	3005	1720	BUZZ	300	S3	—	Buzz Saw
14230	3005	0830	USB	—	S9	—	Indon Crims In Timor
14250	3005	0830	A3E	—	S4	—	Pyong Yang very low lev
14300	3005	0830	CW	330	S3	—	Daily PIPS
18090	1905	2245	Multi	330	S8	—	Sounds like 11-mile 2kw TX-Log Periodic..TX-site closing down

AMSAT continued

The future...on the drawing board

AMSAT-North America has started planning a new low-earth-orbit communications satellite.

Although the satellite will be similar in mass and size to the original MICROSAT design, it will incorporate all new, leading edge electronics and RF technology. The new project will operate as an "easy-sat", as well as serving as a test bed for new technologies. The new "bird" will be named AMSAT-OSCAR E (Echo) until launch. Plans call for the satellite to contain analog and digital VHF/UHF FM transponders and in addition, the new satellite will have the capability to host one or two other experimental payloads yet to be finalised. AMSAT-NA has partnered with an outside contractor, SpaceQuest, Ltd. of Fairfax, Virginia, who will assist in building the satellite bus. AMSAT volunteers are responsible for the design, development, integration and testing of

the various experimental payloads. The spacecraft is now slated to be ready for launch in late 2003. A number of affordable launch opportunities are being actively explored.

I have no further news regarding VUSAT from AMSAT - India. See the May column for some early details of this project from the Indian Space Research Organisation.

...and locally

- Three space-related projects are underway in this part of the world. Groups in NSW, Qld and New Zealand have low-earth-orbit satellites on the drawing board. It is hoped that all these will have an amateur radio component and go

on to become "Oscars". All three projects are still in the planning stages.

- The BlueSAT project is underway at the University of New South Wales. You can find all the details at:
<http://www.bluesat.unsw.edu.au>
- The JaeSAT project is being sponsored by the Australian Space Research Institute and is based in Queensland. Their web site is:
<http://www.asri.org.au> and you can follow the links from there
- The KiwiSAT project is being planned by AMSAT-ZL and you can find details at their web site: <http://www.amsat-zl.org.nz> and follow the links from the home page.

Surprising activity on 160m

I have been pleasantly surprised over the past couple of months with the activity on the 160 metre band. Since erecting a shortened vertical (66 feet long with loading coils at the top and bottom, based on a design by Doug DeMaw, W1FB) I have managed to work 5 stations in the USA (with 559 reports both ways), a number of DXpeditions in the South Pacific and a number of VK2s, VK3s, VK4s and a VK5.

My previous antenna for 'casual' listening on 160 had been a G5RV with the feeder tied together and fed against earth via a Z match ATU. This may explain why I had never heard much activity on the band (especially DX) until I had put up and tuned the vertical. The difference between the two antennas has to be heard to be believed; signals that are just audible on the G5RV are at least 4 S points stronger on the vertical. I admit verticals are more prone to picking up interference and QRN than

are horizontal antennas, but 160 is a noisy band at the best of times and anyway there aren't many of us who can manage to get a horizontal dipole for 160 up high enough to be effective! The antenna is simple and easy to construct and I am planning to write it up as an article for AR. I am pleased with the performance of my new antenna and plan on spending a bit of time on 160 over the winter months to see who, where and what DX pops up on the

band.

The IOTA contest will be held over the last weekend of this month (27th and 28th of July) and as usual there will be a large number of operations taking place from rare locations and remote islands all over the world. If you are keen on having QSO's from places that are rare and exotic places then this contest is for you. I'll be having a listen (especially on 160) to see what I can put in the log. Have a listen and let me know what you manage to work or hear.

The DX

SW, SAMOA. Ted, K8AQM and David, K8AA have been granted the callsigns 5W0TR and 5W0AA and will be operating over the period the 2nd until the 12th of July. They planning to be active on all bands 40 - 10 metres mainly CW and digital modes but will also try to get some SSB in as well. QSL route for both calls is via K8AA. [TNX K8AQM and OPDX]

9G, GHANA. Henk, PA3AWW says that he will be working as a volunteer at the Dormaa Hospital in Dormaa-Ahankro, Ghana for a couple of months (July and August). He has permission to operate with the callsign 9G1AA on the 40, 20 and 15 metre bands, and has a preference for CW. QSL via PA3ERA. [TNX PA3ERA and 425 DX News]

JD, MARCUS ISLAND (Minami Torishima). Osamu, JH1EFP will be paying a visit to the island over the period of the 16th July until the 6th of August. He will be using the JD1YB club station, mainly on 17 metres CW and SSB, from 0900 to 1100 or 2000 to 2200Z. Osamu is a radio technician and will be doing some maintenance work on the Loran radiolocation equipment located on the island. QSL route for this

operation only via 2 - 5 - 35 - 405 Miyazaki Cyuonku Chiba, JAPAN 260-0806. [TNX JH1EFP and The Daily DX]

KL, WALRUS ISLANDS. Lanny, W5BOS will be active on all bands 20 - 10 metres using CW and SSB signing W5BOS/KL5 from the *Walrus Islands (NA-121)* over the period of the 8th until the 10th of July. QSL via W5BOS either direct or via the bureau. [TNX W5BOS and 425 DX News]

OJ0, MARKET REEF. Seppo, OH1VR is planning a bit of operation from *Market Reef (EU-053)* using the call OJ0VR. He expects to be active from the 8th until the 11th of July. Seppo hopes to spend some time on all bands 160 - 6 metres using CW and SSB. Seppo may have a visit from Vicky, AE9YL and Carl, K9LA during his activity, so keep and ear open for OJ0/AE9YL and OJ0/K9LA as well on the HF bands. QSL via OH1VR for contacts with OJ0VR and to home calls for OJ0/AE9YL and OJ0/K9LA. [TNX NC3K and The Daily DX]

TY, BENIN. French amateurs (F5MOO as TY7Z, F5CWU as TY9F, F5AOV as TY4DX and F1PJB as TY6FB) will be active again from Benin between the 15th of July and the 14th of August. The group

plan to operate on all bands 160-6 metres and hope to do some satellite work too. No QSL information for the activity has been provided but perhaps it'll come later. Alternatively, if you manage to work them and are eager for a QSL card then try their homecalls. [TNX La Gazette du DX and 425 DX News]

YA, AFGHANISTAN. Chris, YA/G0TQJ is currently active from Kabul in Afghanistan and will continue to be so until at least the end of July. QSL via home call direct to C.M. Vernon, 66 Kesteven Road, Stamford, Lincs PE9 1SU, England or via the bureau. [TNX YA/G0TQJ and 425 DX News]

Vlado, Z35M, has been active from *Tirana, Albania* as ZA/Z35M since the 1st of June. He is currently working in Tirana and expects to be there for several years. Vlado hopes to operate CW and SSB on all of the HF bands during his stay. He also points out that the Albanian band plan for 80 m is 3750 - 3800 and 40 m is 7040 - 7100 kHz. He also has a website at <http://www.qsl.net/z35m>. QSL direct only to Z35M, Vladimir Kovaceski, Box 10, Struga 6330, Macedonia. [TNX Z35M and The Daily DX]

IOTA Activity

The IOTA contest will be taking place the last weekend of this month and as usual there are many thousands of individuals and groups planning trips to islands all over the world to compete. For those who are interested in IOTA or if you simply enjoy working rare, remote and exotic islands, then this will be a very interesting and enjoyable weekend.

9A, CROATIA Emir, 9A6AA plans to be active on 40 and 20 metres SSB from *Zeka Island (EU-136)* on the 26th of July and then *Visoki Island (also part of EU-136)* on the 27th. [TNX 9A6AA and 425 DX News]

9H, MALTA Maurice, ON4BAM says he will be active on all HF bands using SSB and PSK signing as 9H3Z from *Malta (EU-023)* over the period of the 15th until the 30th of July using a TS450s and wire antennas. He is on vacation but

intends to relax while on leave by entering the IOTA contest. QSL via ON4BAM. [TNX ON4BAM and OPDX]

I, ITALY Feco, HA8KW is spending a week on *Grado Island (EU-130)* from the 25th of July until the 2nd of August and plans to operate on the 10, 12, 15, 17, 20 and 30 metre bands, mainly CW but with some SSB. He will be using the callsign IV3/HA8KW/P and also intends to enter the IOTA contest as well. QSL via home call direct or via the bureau. [TNX HA8KW, Islands On The Web and 425 DX News]

FP, St PIERRE and MIQUELON ISLANDS Linda, VE9GLF and Len, VE9MY are planning to be active from *St. Pierre & Miquelon (NA-032)* for a few days at the end of July and will be taking part in the IOTA contest. They are aware

that these islands are particularly sought after in Asia and Oceania so please have a listen and take advantage of the opportunity QSL via homecalls [TNX VE9GLF]

W, USA Tony, WF1N and Lou, W1DIG will be active from *Thacher Island (NA-148)* between the 26th and the 28th of July and are planning to participate in the IOTA Contest. QSL via home calls either direct or via the bureau. [TNX WF1N and 425 DX News]

W, USA Operators from the Federal Way ARC in the USA will be active on all bands 10 - 40 metres as WA7FW/7 from *Whidbey Island (NA-065)* from 00.00 UTC on 20th until 23.59 UTC on the 21st of July. QSL via the operators instructions. [TNX N7UO and 425 DX News]

DXpeditions

CY9, St PAUL ISLAND A group of American operators, N0QJM, VE1AAO, VE9DH, WO0E, W0SD, W7XU and WV2B are planning a DXpedition to *St Paul Island (NA-094)* over the period of the 29th of June until the 8th of July. There will be two fully manned stations (with a possibility of a third to handle peak periods on HF), one station will operate exclusively on 6 metres (transmit only on 50157kHz listening up) and the second (and possible third station) on HF. No operation on 80 or 160 metres is planned due to the poor characteristics

of these bands in this region at this time of the year. The planned frequencies for the operation are: SSB, 14195 (alt 14145), 18145, 21295, 24945, 28495 kHz, CW, 7005, 10105, 14020, 18100, 21020, 24900, 28020 kHz and RTTY, 7080, 10115, 14080, 18080, 21080, 24908, 28080 kHz. [TNX W0SD and 425 DX News] QSL via W7XU.

HKO, COLOMBIA A German group of operators, DH7WW, DK8YY, DL2AKT, DL2OAP, DL3ALI, DL4ALI, DL4JS, DL4YY, DL7ZZ, DL8AKI will be joining HC2DX on a trip to *San Andres Island*

(NA-033). The activity will take place over the period of the 16th until the 29th of July. They have requested the call HK0ZZ and are also planning on participating in the IOTA contest. Operation will take place on all bands from 160 - 6 metres (with an emphasis on the lower bands), modes will be SSB, CW, PSK and satellite. QSL route is via the bureau or direct to Ulrich Moeckel DH7WW, Muldenstrasse 1, 08304 Schoenheide, Germany. Logs for the operation will be available at <http://www.ve9dx.com> [TNX DL7ZZ and 425 DX News]

Round up

V7, MARSHALL ISLANDS Jim Todd, KC7OKZ/V73KZ and his XYL Carol, KC7TSX/V73SX have been on *Majuro Island (OC-029)* in the Marshall Islands since the 28th of January. Apparently they are frequent visitors to various DX nets, e.g. the ANZA Net on 21.205 MHz at 0450 UTC, the Southern Cross Net on 14 226.5 at 1100 UTC and the Bill Bennett Family Net on 14.245 MHz at 1400 UTC. Rumour has it that they are close to receiving permission to operate from the 'forbidden islands' of Taongi and Ujelang. IOTA chasers will be aware that both of these islands are keenly sought after. The pair are planning to leave Majuro for Taongi sometime in late

July. Keep an ear out and give them a call if they come up on air from either of these locations. [TNX G3ZAY and 425 DX News]

ON, BELGIUM Belgian amateurs have been granted permission, from the 8th of May until the 11th of July, to substitute OR for the normal ON prefix, while those Belgian amateurs who speak Dutch will be allowed to use the OS prefix. As far as I can make out, the special prefixes are to be used in contests only. The occasion is to celebrate the 700th anniversary of the Battle of the Golden Spurs. [TNX ON4CAS and 425 DX News]

DU, PHILIPPINES Robin, DU9RC has

informed the various DX newsheets that all Philippine amateurs have been granted permission to use the prefix 4D70 (clubs can use DZ70) until the end of the year. The prefixes are to celebrate the 70th anniversary of the Philippine Amateur Radio Association, PARA. [TNX DU9RC and OPDX]

9U, BURUNDI Gus, SM5DIC/9U5D wants us to know that his good friend and colleague, UN Chief Communication Coordinator, Christian Alemanni in Bujumbura, Burundi, is now a licenced amateur radio operator. His newly issued callsign is 9U5A. The ARCT bureau successfully processed his application and issued him with a full

(legal) licences. He will be forwarding on a copy, with relevant documents, to the ARRL DXCC office to be confirmed for future claims. Gus says that Christian has had very little operating experience on HF, and none in pile ups, and asks that people 'go easy on him' until he gains some confidence through experience. Previously he has only had a French limited class license and operated only on VHF repeaters at home. Christian, 9U5A will be engaging a fellow French ham as his QSL manager. [TNX SM5DIC/9U5D and OPDX]

ANTARCTIC ACTIVITY. Chris Post, N3SIG says that he is currently back in the United States but that he will be returning to *Ross Island (AN-011)* on the 15th of August. He plans to be active on HF shortly after his return. He also mentions that he managed to get approval for his Antarctic New Zealand license to be renewed and will be operating with the special ZL5CP call sign again, however, he will also be using KC4/N3SIG from the American McMurdo Base Station. Chris's QSL

Manager will be AI3D for both callsigns. [TNX N3SIG and OPDX]

Steve, 7J1AIL (aka K7USJ) is a correspondent for the Associated Press, AP, and has been working in Japan for many years. Like a good reporter he has been keeping his nose to the ground and heard that Kenwood is restructuring and that its President is about to resign. Kenwood admitted that it will shed 2700 jobs (this is 30% of its workforce) and will drastically reduce home audio and visual operations as part of the restructuring plan. Kenwood has not indicated whether this will impact on their amateur radio equipment division. [TNX 7J1AIL and The Daily DX]

Hans, L40370, has been listening around on the bands recently and has

come up with a list of nice callsigns and my thanks go out to him for sending me a copy.

Band	Call	Mode	UTC
40	3D2UM	CW	1340
40	K1B	CW	
30	5X1GS	CW	2000
20	4J8ZZ	CW	2210
20	3V8BB	SSB	0440
20	PJ4M	SSB	2115
20	8P4A	SSB	2145
15	3G1K (CE)	CW	2210
15	E21EIC (HS)	CW	0430
15	ZX3S (PY)	CW	2140
15	9M6/JA1WFX	CW	
15	6W3/UA3VCS	CW	
15	XV9DT	CW	

ar

Sources

Thanks to the following people and organisations for the information contained in DX notes this month. L40370, K8AQM, PA3ERA, JH1EFP, W5BOS, NG3K, YA/G0TQJ, Z35M, 9A6AA, ON4BAM, HA8KW, VE9GLF, WFIN, N7UO, W6SD, DL7ZZ, G3ZAY, ON4CAS, DU8RG, SM5DIC/9U5D, N3SIG, 7J1AIL, OPDX, Islands On The Web, La Gazette du DX, 425 DX News, The Daily DX and the RSGB.

Club News

Southern Radio Group

While not an official radio club, a group of radio amateurs who live on the near South coast of SA, around Victor Harbour (where many people chose to retire) have a luncheon meeting every three months. XYLS and YLS are invited as are friends from the City. On a Sunday in May 20 people enjoyed a good meal together on a lovely sunny day.

The number attending this function varies but the good fellowship doesn't. Thanks for inviting us.

Contact Christine Taylor VK5CTY geencee@picknowl.com.au

Adelaide Hills Amateur Radio Society

Last Month Graham VK5ZLZ took the floor at the AHARS meeting and kept everyone interested as he showed how computer power supplies can become the basis of linear amplifiers for your rig.

He had many examples to hand around and most people went away with new ideas and, perhaps an ambition to "have a go", which after all is the aim of such a demonstration.

As usual there were over 50 members present and much good fellowship was enjoyed by all.

If you are going to be in Adelaide on the third Thursday of a month give Geoff VK5TY or Alby VK5TAW a ring or a call on 147.000MHz for details of where and when the next meeting of AHARS will be. You will be made welcome.

Wagga Amateur Radio Club inc - VK2WG

PO Box 234, Wagga Wagga NSW 2650
Clubrooms - Small St Wagga Wagga
For Meeting information contact John Eyles VK2YW 02 69265471 AH IRLP Node - 626 Sunday Net - 7.165 MHz - 12 noon EST Members get together most Saturday mornings at Clubrooms - all welcome.

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Spotlight on SWLing

Robin Laird Harwood VK7RH

Hamstrung, but strung up nevertheless

Here in this retirement village, I am hamstrung at not being able to string up an outside antenna yet and am still relying on the 21 feet of wire on my curtain rail. Nevertheless I am hearing some interesting signals.

The BBC signal on 9410 kHz has been very reliable over our winter months and comes in from 0200 till past 0600. 12095 kHz does not seem to be as good as in previous years. It has been a year since London discontinued broadcasting via shortwave to Australasia.

You may have come across the Overcomer Ministry programs from many American sites such as WWCR or via the Juellich site in Germany. It is the vehicle for "Brother Stair", a fire and brimstone preacher in South Carolina. He apparently had a small community in Walterboro and hired airtime over many domestic American stations as well as over shortwave stations such as WWCR and WBCQ. He was one of many who predicted date for the end of the World and claimed that it was the prayers of the faithful that prevented it from happening and not a miscalculation on his part.

All apparently was not well within this community as several disaffected individuals also started broadcasting serious allegations over the same shortwave station. Stair ignored these and they eventually came to the attention of District Attorney and after investigations the DA arrested Stair on several sexual charges, later upgraded to rape allegations and Stair is currently in custody awaiting trial. The Stair programs ceased abruptly over several shortwave and domestic outlets although WWCR continued to air previously recorded programming. Stair apparently had a dedicated transmitter exclusively for his programming. There are no indications on when the trial will be held and the judge has refused bail citing the seriousness of the charges.

Australia's Time and Frequency Standard station, VNG, based at the Llandino site of Air Services Australia, ceased operation on June 30th. Funding was withdrawn. The signal on 8638 kHz has been non-operational for six months. It is not clear what will happen now that

VNG has ceased.

Another change that also happened on June 30th is that the weather FAX transmissions via the Belconnen (ACT) and Darwin (NT) Defence Department facilities ceased. These have now commenced from a private operator on contract. These now emanate from Charleville in QLD and Wiluna in WA. Wiluna operates on the former Darwin frequencies of 10550, 13550 and 18060 whilst Charleville operates on the former Belconnen channels of 2628, 5100, 11030 and 13920. The same operator is now also responsible for the broadcast of voice weather bulletins formerly handled by Telstra via the HF coast stations in Perth, Sydney and Melbourne now replaced by Charleville and Wiluna.

Tibet in English

Monitors within Europe have reported that English programs are being heard over shortwave from Lhasa. The frequencies are 6130 and 9490 at around 1630 to 1700. These are being relayed from the local FM station for international tourists within Tibet and aired Monday to Saturday.

The current situation within Afghanistan is still one of continuing turmoil. Although the Al Qaeda and Taliban are well and truly on the run, the domestic political scene is still very fluid. There is continuing intrigue between the various political factions over the spoils of power. Some provincial administrations are allying themselves with nearby countries such as Iran, the CIS or Pakistan and minimising contact with the government in Kabul.

In an effort to counteract this, Radio Afghanistan recently started to broadcast again via shortwave from senders in Norway and the United Arab Emirates. The US and the European Union have assisted materially to re-establish the print and electronic media. Because

there has been a difficulty in communicating to the whole of Afghanistan, programming from Kabul is uplinked to senders in both Norway and the UAE and is being currently heard as follows:

18940 from 1400 to 1700 (Kvitsoy)

15240 from 0200 to 0359 (UAE).

Please note that the latter frequency also has Radio Australia from Shepparton co-channel in English. Also note that this station has nothing to do with the Clandestines on 8700 (Information R) and 15480 (Voice of Afghanistan) which are still being observed in Europe.

Acknowledgments to Glenn Hauser and also the swprograms list on the Internet for background to this month's column. If you have any news or comments, email me at vk7rh@wia.org.au. 73 de VK7RH

PLAN AHEAD

ALARAMEET

**October 5 & 6, 2002,
Murray Bridge, South
Australia**



**In Tune with
Amateur Radio**

Contest Calendar July – September, 2002

July 1	RAC Canada Day Contest	{CW/SSB}	
July 6/7	Internet 6m Contest	{CW/SSB}	
July 13	Jack Files Contest	{All}	(Jun 02)
July 13/14	IARU HF World Championship	{CW/SSB}	
July 20	Pacific 160 Metres Contest	{CW/SSB}	(Jun 02)
July 27/28	Russian RTTY WW Contest	{RTTY}	
July 27/28	IOTA Contest	{CW/SSB}	
July 27	Waitakere Sprint	{SSB}	
Aug 3	Waitakere Sprint	{CW}	
Aug 3	European HF Championship	{CW/SSB}	
Aug 4	YO DX Contest	{CW/SSB}	
Aug 10/11	Worked All Europe DX Contest	{CW}	
Aug 17	SARTG WW RTTY Contest	{RTTY}	
Aug 17/18	Keymen's Club of Japan Contest	{CW}	
Aug 17/18	SEANET Contest	{All}	(Jul 02)
Aug 17/18	Remembrance Day Contest	{CW/SSB}	(Jun 02)
Aug 24/25	SCC RTTY Championship	{RTTY}	
Aug 24/25	TOEC WW GRID Contest		
Aug 24/25	ALARA Contest	{CW/SSB}	(Jun 02)
Sep 7	Digital Modes Contest	{PSK31 etc}	(Jul 02)
Sep 7/8	All Asian DX Contest	{SSB}	
Sep 14/15	Worked All Europe DX Contest	{SSB}	
Sep 21/22	Scandinavian Activity Contest	{CW}	
Sep 28/29	Scandinavian Activity Contest	{SSB}	
Sep 28/29	CQ/RJ WW RTTY Contest	{RTTY}	
Sep 28/29	Anatolian DX Contest	{SSB}	

Greetings to all readers,

Quite a lot of information this month, so please read carefully.

I draw your attention to a new VK contest concentrating on newer digital modes. Details are below and for this we are indebted to the CW Operators' QRP Club based in Adelaide. Please take note and get yourself a program for PSK31 and see if we can make this an interesting inaugural event.

A reminder of the RD and ALARA Contests, both in August, as well as the Seaneet Contest being hosted in Australia this year. These need your support – as well as the DX contests, of course!

73 and good contesting, Ian Godall VK3VP

Results VHF Summer Field Day 2002

from John Martin VK3KWA, Contest Manager

The Summer Field Day is becoming steadily more popular, especially the 6 hour section. The 24 hour single operator section is losing support, although there seems to be agreement that it should not be abolished. Many entrants have commented that 24 hours is too long, but 6 hours is too short.

Two alternatives have been suggested - 8 hours and 12 hours, and I am inclined to prefer 12 hours. An 8 hour stretch isn't much longer than 6 hours, and for most people it would still mean staying overnight, so we might as well make it 12 hours. To make it more flexible, the 12 hours could be in one continuous block or in two six-hour periods. That would allow anyone to do a full Saturday, or they could start late or finish early on the Saturday and make up the other 6 hours on the Sunday.

There is also some support for a 6 hour multi-operator section. I will have to think about this because it would mean that there would be five sections in the contest rather than the existing four.

The other issue is the grid-hopping bonus. It can give a major advantage but could discourage some entrants who don't wish to pull up sticks and keep moving to get a good score. I think the bonus is a good idea but it may need to be reduced a little.

There were also a couple of other suggestions about the 6 metre scoring - some say it is too low, and others would rather see it dropped to zero. There was also a suggestion that there should be a CW section. I think I will pass on this

one because it would mean yet another section, and in any case CW provides its own rewards by allowing extra contacts that can't be made with other modes.

If you have comments on any of these ideas, please write or email to jmartin@xcel.net.au.

Turning now to the logs, much of the score checking was done by Mark VK3TLW - thanks Mark. Some logs needed to be re-scored or didn't provide all of the necessary information - for example addresses or postcodes, or the full names of all of the operators. But the main problem is the grid square points. Remember that you can claim ten

points for each square you activate, plus ten for each square you work on each band. But each square you work can only be counted once, no matter how many squares you have worked it from.

The scoring system is rather complex, so to make it easier I have prepared a pro-forma scoring table. A copy has been mailed to all entrants, and it will also be posted on the WIA Federal web site.

Finally, the results. The overall winner this year is **Barry VK3BJM**. First place in Section B goes to **Peter VK3KAI**. In the multi-operator section, the GARC has done it yet again, and the top home station was **Charlie VK3FMD**. Congratulations to all.

Summer Field Day 2002: Results

Call/Name	Locator(s)	6	2	70	23	12	9	3	TTL
		m	m	cm	cm	cm	cm	cm	
Section A: Single Operator, 24 Hours									
VK3BJM, B. Miller	QF13	67	807	715	640	-	-	-	2229
VK3AEF, J. Bywaters	QF03	33	483	656	368	-	-	-	1599
VK3KBJ, B. Bates	PF96	39	570	435	-	-	-	-	1044
VK5AR, A. Raftery	PF82, PF93	21	426	570	-	-	-	-	1017
Section B: Single Operator, 6 Hours									
VK3KAI, R. Freeman	QF21, 22, 31, 32	21	237	385	432	320	320	430	1887
VK5MX, M. Millar	PF85, 86, 95, 96	97	333	556	792	-	-	-	1777
VK5UE, C. Low	PF85, 86, 95, 96	95	336	550	784	-	-	-	1765
VK3AXH, I. McDonald	QF12	408	625	384	-	-	-	-	1417
VK3YE, P. Parker	QF22	48	384	560	-	-	-	-	982
VK3UPS, C. Sturgeon	QF22	49	378	565	-	-	-	-	992
VK3DH, D. Smith	QF22	-	345	430	-	-	-	-	775
VK5AIM, S. Mahony	PF95	25	128	200	192	-	-	-	543
VK4OE, D. Friend	QG53	-	96	160	168	-	-	-	424
VK4LP, J. Lemura	QG62	-	123	195	-	-	-	-	318
VK4EV, R. Everingham	QG62	-	102	195	-	-	-	-	297
VK2EI, N. Sandford	QF88	-	243	-	-	-	-	-	243

Section C: Multi Operator, 24 Hours

VK3ATL, GARC (1)	QF21	91	888	985	1040	-	-	210	3214
VK3BEZ, EZRC (2)	QF31	33	267	395	424	370	360	470	2309
VK3EK, EGARC (3)	QF32	48	471	555	520	210	-	-	1812
VK5OQ, (4)	PF95	28	123	190	240	-	-	-	581

Section D: Home Station, 24 Hours

VK3FMD, C. Kehwagi	QF22	75	618	845	944	210	210	-	2902
VK3BDL, M. Goode	QF22	84	639	840	738	-	-	-	2299
VK3AUI, G. Sones	QF22	67	306	460	392	-	-	-	1225
VK5GN, M. Luther	PF95	35	150	180	-	-	-	-	365
VK3VP, I. Godall	QF21	35	120	-	-	-	-	-	155
VK3TRD, D. Rolfe	Check log								

- Geelong Amateur Radio Club: C. Gnaccarini VK3BRZ, D. Learmonth VK3XLD, C. Leone VK3BCL, K. Jewell VK3AKK.
- Eastern Zone Radio Club: R. Edgar VK3WRE, B. Young VK3BBB, G. Francis VK3HV, K. Brown VK3DMW.
- East Gippsland Amateur Radio Club: I. Foster VK3ST, P. Maskrey VK3HBR, D. Pendergast VK3DMP, M. Stanford VK3VLR, R. Ashlin VK3EK.
- K. Gooley VK5OQ, J. Sayers VK5JQ, K. Thole VK5HKT.

Results Ross Hull VHF+ Contest 2001 - 2002

from John Martin VK3KWA, Contest Manager

Activity in the 2001- 2002 contest was lower than usual, mainly due to very poor propagation. Some regular entrants were absent this time, but there were also some new entrants and others who sent in logs for the first time in some years.

In both the seven day and two day sections, the first two places go to VK4. Congratulations to **Glenn VK4TZL** for

winning the contest for the second time. **Tony VK4CH** came second, but turned the tables on Glenn by coming first in the two day section.

It was interesting to see two entrants - **Wally VK6KZ** and **Peter VK3KAI** - operating on a total of seven different bands. Even more interesting is the fact that Wally pipped all of the eastern state entries to get the top score on 23 cm.

Also of interest was the log from **Alain FK8CA**, who gained top score on 6 metres in the two day section.

Thanks to all who sent in logs, and thanks also to Mark VK3TLW for his assistance in checking the logs. I hope next year will see a break in the drought of propagation and a much higher level of activity.

Ross Hull Contest 2001 - 2002: Results

Call/Name	5	2	70	23	12	9	6	3	TTL
	m	m	cm	cm	cm	cm	cm	cm	
Section A: Best 7 Days									
VK4TZL, G. McNeil	413	741	300	32	10	-	-	-	1496
VK4CH, A. McRae	483	380	270	24	-	-	-	-	1157
VK3AXH, I. McDonald	18	354	370	80	-	-	-	-	822
VK6KZ, W. Howse	42	153	100	136	70	-	30	80	611
VK2TG, R. Demkiw	69	294	75	-	-	-	-	-	438
VK2EI, N. Sandford	-	405	-	-	-	-	-	-	405
VK3KAI, P. Freeman	1	69	55	24	30	10	-	40	229
VK3AUI, G. Sones	20	57	80	56	-	-	-	-	213
VK6ADI, B. Burns	113	12	-	-	-	-	-	-	125
VK4KZR, R. Preston	-	87	-	16	-	-	-	10	113
VK3HV, G. Francis	46	21	-	-	-	-	-	-	67
VK3VP, I. Godsil	10	12	-	-	-	-	-	-	22

Call/Name	5	2	70	23	12	9	6	3	TTL
	m	m	cm	cm	cm	cm	cm	cm	
Section B: Best 2 Days									
VK4CH, A. McRae	334	161	95	18	-	-	-	-	605
VK4TZL, G. McNeil	162	315	100	16	10	-	-	-	603
VK3AEF, J. Bywaters	11	228	255	80	-	-	-	-	564
VK3AXH, I. McDonald	3	168	250	80	-	-	-	-	501
FK8CA, A. Gouillard	450	-	-	-	-	-	-	-	450
VK3KAI, P. Freeman	1	64	55	24	30	10	-	40	214
VK3AUI, G. Sones	20	57	80	56	-	-	-	-	213
VK6KZ, W. Howse	17	60	35	40	20	-	20	20	212
VK2EI, N. Sandford	-	198	-	-	-	-	-	-	198
VK2TG, R. Demkiw	45	75	20	-	-	-	-	-	140
VK4KZR, R. Preston	-	18	-	16	-	-	-	10	44

Ross Hull Contest: List Of Winners, 1950 - 2002

1950 - 1951	VK5QR	R. Galle	1968 - 1969	VK5ZKR	C. M. Hutchesson	1985 - 1988	VK3ZBJ	G. L. C. Jenkins
1951 - 1952	VK5BC	H. Lloyd	1969 - 1970	VK3ZER	R. W. Wilkinson	1986 - 1987	VK3ZBJ	G. L. C. Jenkins
1952 - 1953	VK4KK	A. K. Bradford	1970 - 1971	VK4ZFB	J. F. Blanch	1987 - 1988	VK5NC	T. D. Niven
1953 - 1954	VK6BO	R. J. Everingham	1971 - 1972	VK5SU	E. W. K. Adams	1988 - 1989	VK5NC	T. D. Niven
1954 - 1955	VK4NG	R. Greenwood	1972 - 1973	VK5SU	J. W. K. Adams	1989 - 1990	VK3XRS	R. K. W. Steedman
1955 - 1956	VK3GM	G. McCullough	1973 - 1974	VK5SU	J. W. K. Adams	1990 - 1991	VK3XRS	R. K. W. Steedman
1956 - 1957	VK3ALZ	I. F. Berwick	1974 - 1975	VK5SU	J. W. K. Adams	1991 - 1992	VK3XRS	R. K. W. Steedman
1957 - 1958	VK3ALZ	I. F. Berwick	1975 - 1976	VK5SU	J. W. K. Adams	1992 - 1993	VK3XRS	R. K. W. Steedman
1958 - 1959	VK3ALZ	I. F. Berwick	1976 - 1977	VK4DO	H. L. Hobler	1993 - 1994	VK3XRS	R. K. W. Steedman
1959 - 1960	VK4ZAX	D. R. Horgan	1977 - 1978	VK3OT	S. R. Gregory	1994 - 1995	VK3XRS	R. K. W. Steedman
1960 - 1961	VK3ARZ	W. Roper	1978 - 1979	VK4DO	H. L. Hobler	1995 - 1996	VK2FZ/4	A. Pollock
1961 - 1962	VK5ZDR	M. J. McMahon	1979 - 1980	VK3ATN	T. R. Naughton	1996 - 1997	VK2FZ/4	A. Pollock
1962 - 1963	VK4ZAX	D. R. Horgan	1980 - 1981	VK6KZ	W. J. Howse	1997 - 1998	VK2FZ/4	A. Pollock
1963 - 1964	VK5ZDR	M. J. McMahon	1981 - 1982	VK6KZ	W. J. Howse	1998 - 1999	VK3XPD	A. P. Devlin
1964 - 1965	VK3ZER	R. W. Wilkinson	1982 - 1983	VK6KZ	W. J. Howse	1999 - 2000	VK3EK	R. G. Ashlin
1965 - 1966	VK3ZDM	J. R. Beames	1983 - 1984	VK6KZ	W. J. Howse	2000 - 2001	VK4TZL	G. R. McNeil
1966 - 1967	VK5HP	J. H. Lehmann	1984 - 1985	VK3ZBJ	G. L. C. Jenkins	2001 - 2002	VK4TZL	G. R. McNeil
1967 - 1968	VK3ZER	R. W. Wilkinson						

Rules SEANET Contest 2002

from Ben Koh VK6XC, SEANET Secretary

17/18 August, 2002

1200UTC Sat - 1200UTC Sunday

The organisers of the SEANET Convention 2002 invite all radio amateurs world-wide to participate in the SEANET 2002 Contest. This contest is associated with the 30th Annual SEANET Convention in Perth, Western Australia to be held 1st - 3rd November 2002, in the spirit of amateur radio world-wide friendship. The format of the contest will remain the same as last year, in accordance with the wishes of the contestants. The contest will therefore be a single 24 hour contest incorporating CW, Voice and digital modes.

Purpose of contest:

To promote two-way amateur radio communication within the SEANET Region and between the SEANET region and the rest of the world using various modes.

Contest times & dates:

Start 1200 GMT Saturday 17th August,

Finish 1200 GMT Sunday 18th August (24 hours)

Bands/frequencies:

160, 80, 40, 20, 15, and 10 metres (No WARC) Frequencies should be used as appropriate to the mode and station licence.

Modes:

CW; SSB/FM; Digital (RTTY, AMTOR, FACTOR I/II, CLOVER, PSK31 etc.)

Classifications:

SEANET stations -

Single-band - Single operator - mixed mode

Multi-band - Single operator - mixed mode

Multi-band - Multi operator - mixed mode

Single-band - Single operator - single mode (i.e. CW, Voice or Digital)

Multi-band - Single operator - single mode

WORLD-WIDE Stations (outside SEANET Region) -

Single-band - Single operator - mixed mode

Multi-band - Single operator - mixed mode

Multi-band - Multi operator - mixed mode

Single-band - Single operator - single mode (i.e. CW, Voice or Digital)

Multi-band - Single operator - single mode

Power Input: As stipulated in the regulations governing the licence of the operator.

Exchange: RS(T) report plus serial numbers starting with 001 and increased by one for each successive contact.

Scoring Rules: SEANET stations may contact World-Wide and SEANET stations, AND stations within own country. World-Wide stations may ONLY contact SEANET stations. For the purpose of the contest "SEANET" stations are defined as those operating from the following ITU zones -

- 41 - 4S7,8Q7,A5,AP,S2,VQ9,VU,VU(Laccadive)
- 42 - 9N,B/BY
- 43 - B/BY
- 44 - BV,B/BY,HL,P5,VR2,XX9
- 45 - JA,JD1(Ogasawara)
- 49 - 3W,E2,HS,XU,XV,XW,XY,XZ,VU(Andaman),
- 50 - 1S,9M0(Spratly),DU
- 51 - H4,P29,YB
- 54 - 9M2,9M6,9M8,9V1,V8,VK9C,VK9X,YB,4W
- 55 - VK,VK9W
- 56 - 3D2,FK,VK9M,YJ
- 58 - VK
- 59 - VK
- 60 - VK0(Macquarie Is) VK0M, VKOL, VK9N, ZL, ZL7, ZL8, ZL9
- 64 - T8, KC8, KH0, KH2,
- 65 - C2, KH9, T2, T30, T33, V8, V7
- 90 - JD1 (Minami Torishima)

The DXCC Entity list for multiplier scoring purposes is:
1S/9M0(Spratly), 3D2, 3W/XV, 4S7, 8Q7, 9M2, 9M6/9M8, 9N, 9V1, A5, AP, B/BY, BV, C2, DU/DT/4F, FK, H4, HL, HS/E2, JA, JD1(Minami Torishima), JD1, KC8, KH0, KH2, KH9, P5, P29, S2, T2, T30, T33, T8, V6, V7, V8, VK, VKOL, VKOM, VK9C, VK9M, VK9N, VK9W, VK9X, VQ9, VR2, VU, VU(Andaman), VU(Laccadive), VU, XU, XW, XX, XY/XZ, YB/YC, YJ, ZL, ZL7, ZL8, ZL9

Scoring:

Contacts between WORLD-WIDE and SEANET Stations = 10 points.

Contacts between SEANET stations in DIFFERENT SEANET countries/entities = 10 points.

Contacts between SEANET stations in the SAME country/entity = 5 points.

Each DXCC Country/Entity worked counts as a multiplier, but only counts once regardless of band or mode. A multiplier can be claimed for working your own country, but QSO points cannot be claimed except for contacts between stations within a SEANET country/entity.

Note: for mixed-mode entries QSO points can be claimed with the same station on each of the three modes, and for multi-band entries QSO points can be claimed for QSOs with the same station on different bands. Note that only one contact per mode is allowed on each band with the same station. E.g. A "Voice" mode contact can only be made once per band with the same station. SSB or FM can be used for the contact, but points cannot be claimed for an SSB and an FM contact with the same station.

Similarly on digital, any digital mode can be used to make a digital mode contact with the same station, but points cannot be claimed for more than one digital mode with the same station.

Scores should be calculated as follows:

For single-band entries: Multiply total QSO points x total multipliers. E.g. 10 QSOs x 10 points = 100 QSO points x 2 mults = 200 points.

For multi-band entries: Add QSO points for all bands then add the unique multipliers. Multiply total QSO points by total multipliers.

(Multipliers count like the WPX Contest, i.e. once only, not once per band, and not once per mode.)

Restrictions:

Contacts on cross modes or cross bands will not count. Operators are not allowed to transmit two or more signals at the same time on the same band. Entries which contain errors or unmarked duplicates are liable to a reduction of points. Any entrant who uses methods contrary to the spirit of the contest may be subject to disqualification. The decision of the SEANET contest organisers shall be final. All stations may use Internet or Packet Cluster "Spotting". Multi-band, multi-operator stations must not use more than one transmitter/transceiver at the same time for contacts, except that a second receiver/transceiver may be used for "spotting" only. The "spotting" station must not transmit or make any kind of contact.

Logs and summary sheets:

All entries should be in the form of written or computerised logs and summary sheets showing claimed scores band by band, plus the total score claimed must be signed by the person responsible for the entry. Details required are operator's name and address; date; time UTC; band; mode; exchange; claimed score and multipliers (listed); signature of operator. Entries made on computer diskettes or by email should use ASCII(text) format.

Send entries by email to: Ray Gerrard HS0/G3NOM g3nom@rast.or.th

Logs may be sent by mail to: SEANET Contest 2002, Ray Gerrard, PO Box 69, Bangkok Airport Post Office 10112 Thailand.

Entries should be received not later than 30th September 2002.

Results will be announced at the SEANET 2002 Convention at The Acacia Hotel in Perth, Australia, on 2nd November 2002, and will be published on the SEANET 2002 Web Site: <http://www.qsl.net/seanet2002>

If you require a result slip, please enclose three IRCs together with your entry. The winners of each category will be awarded a trophy, and runners up a certificate.





Ham Shack Computers

Alan Gibbs, VK6PG
223 Crimea Street, Noranda WA 6062
Email vk6pg@tpg.com.au

Part 16 – Hard Drive **CRASH!**

Any computer user might experience a Hard Drive Crash. Whether the computer is new or an Old Faithful, the day might come when suddenly the screen goes blank or the computer will not boot (start up). What do you do next?

The important thing is not to wait until you experience a hard drive crash by planning and implementing a data backup process. This entails collecting a few items of software on 1.44-MB floppy disks just in case the inevitable happens. The cost is a few cents but well worth the small effort needed to boot-up your computer and diagnose the problem. For readers with a limited knowledge about computers, there are two choices:

1. Get someone to fix the problem which is going to cost big money, or ...
2. Do the job yourself! For assertive readers, option 2 is by far the best because you will learn more about your computer, and have preserved "The Ham Spirit" - the very essence of Amateur Radio.

Hard Drive Basics

These days, computers are almost fully electronic except for fans, mechanical input and output data devices like floppy drives, Zip drives and of course the internal hard drive itself. If a floppy disk fails, then simply insert another disk and try again - easy. However, the internal hard drive stores the operating system and all the data files as well. If the hard drive fails - you have lost everything!

Hard drives contain several rotating discs on a single motor driven shaft. The disks are double sided and electrochemically coated with a magnetic substrate. Near each disk surface, a magnetic head skims over the surface enabling data to be read and written to the disk. Drives can have say 15 heads each connected to moving arms allowing radial movement just like the pick-up arm on a Hi-Fi turntable except in

miniature. Hard drives are manufactured in a near vacuum, dust free environment and are high precision devices where calibration measurements are measured in microns. Data is divided between each disk surface in HEADS, CYLINDERS, SECTORS and CLUSTERS, and the CAPACITY that determines the total data storage that the drive can accept. For example, your existing 4-GB drive might have 8944CY, 15HDS, 63SECT and 8,452,080CHS. It's easy to identify once the gobbleddegook jargon is understood.

Hard drives sometimes fail because of random power failures, power surges, switching off the computer without exiting software properly, mechanical knocks, the heads have touched the disk surface causing scratches, air has permeated the drive case and contaminated the disk surfaces, and lastly because the drive was installed incorrectly. The drive should sit flat to the horizontal - NEVER mounted on its side, which causes mechanical stress due to the influence of gravitational forces. If your drive is mounted properly, you are gentle with your computer, and regularly run diagnostic procedures - then there is not much that can be done to prevent hard drive failure. It just "happens" as the saying goes!

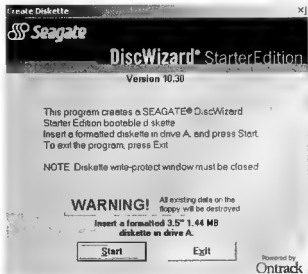
Data Backup

Wise readers backup important data and configuration files. This column has stressed the importance of doing this many times. If some readers choose to ignore this well founded advice then they will be in for a nasty surprise if, and when, their hard drive ever fails.

"It won't happen to me" they chant - Oh yes it can!

Collecting Tools & Data

1. Create an "Emergency Boot Disk" to a new 1.44-MB floppy disk from your Windows 95/98/2000/NT/ME/XP operating system. Move the disk protect switch to safe mode. Make sure that FDISK and FORMAT are included in the collection of boot files
2. Backup all your data files to floppies, or removable Zip disks. Make a copy of the BIOS settings



and add to your documentation for future reference

- Download a copy of your hard drive manufacturer's installation program. Using Seagate as an example, download their Disk Wizard Software (2) (see the image on previous page) to a temporary folder and execute the file to compile the boot and wizard program onto another new floppy disk in the A:\ drive.
- Gather up ALL your operating system CD-ROMs, emergency, disk wizard floppies together with documentation and place them in a suitable box just in case you are in trouble later on.

New Hard Drives

In today's world 40GB is about the smallest drive that can easily be bought over the counter. If your computer is really old (about three years!). The old drive might be a 2GB or 4GB, which were common around 1997/8. These days hard drive capacity has increased 10 fold, so the replacement will offer some advantages in the long term. A good choice might be a new 40GB Seagate Barracuda at well below the \$200 mark over the counter. These new drives are silent in operation.

Installation

- Once the old hard drive has failed, remove the case screws and locate the dud drive.
- Remove the power and multi-pin connectors, and remove the four crosshead fixing screws. Slip the drive out from the back or front of the drive housing.
- On the back edge of the new drive, jumpers should be set for "master" or "slave" operation. If you have just one hard drive in your computer, set the jumper to "master". If two drives are used on the same cable, and the new drive is ADDED to the ribbon cable, use the secondary connector on the harness and set the drive jumper to "slave".
- Install the new drive into the same bay, secure each of the four screws, and reconnect the power and multi-pin connector.

Booting First Time

Insert the "wizard" floppy into drive A:\ and switch on. The computer will boot (start up) and the program will identify and install your new drive within seconds. Other features include updating the BIOS to flash ROM, diagnosing your hard drive(s), running a partitioning wizard and much more. The Seagate wizard also handles FAT16 FAT32 and NTFS (see last month's column) and will soft format your new hard drive.

Installing your software

This is a real grind and takes a very long time to rebuild the file structure of your new drive. Start by installing your operating system, then each application one by one and testing at each step until the computer is back to normal in your Ham Shack once again. Readers will bless the day when you backed up data and specialised important files. These include "My Favourites", email "Address Book" and Internet settings - AND of course - the MAIN STATION LOGBOOK and other information associated with your Ham Shack Computer activities.

Running a Mirror Drive

Many wise AR's use two hard drives either as a "master" plus a "slave" or the second drive connected to the secondary IDE connector on the motherboard. It means paying out for a second drive (D:\) the same size as the C:\ drive and using special software to copy the files from C:\ to the new drive D:\. The process is automated so every file from the working C:\ drive is synchronised with the D:\ drive. If the C:\ drive should fail, then the D:\ drive can replace the C:\ drive and the computer is back in business within 10 minutes! Just make the D:\ drive into a "master" and pop it into the C:\ drive ribbon connector. To do all this easily, Norton Ghost is excellent and can be purchased in a "package deal" along with Norton AntiVirus 2002 and Norton Firewall.

Conclusions

A little time spent collecting information and backing up essential files will save huge amounts of time in the event of a hard drive crash. In addition, if you are short on hard drive space, then installing a bigger drive can solve many problems.

The same procedure described herein can be used. There are many tales of woe circulating around the AR fraternity every day about "computer crashes". But if prepared, users can solve their own problems cheaply and effectively in just one afternoon in the shack. To those who think it's all too complicated, read this column again. Soldering irons are not required to work on computers these days unlike the modern station transceiver where the skills of a specialist micro-surgeon are required! Repairing a computer is simple compared to repairing modern transceivers - yet we each profess to understand transceivers! Ironic really when the requirements to gain an Amateur Radio Licence is considered in the same context! Computer prices have never been lower than they are today. Hence, computer components have become more versatile, more powerful, and much cheaper than AR electronic components. It is this productivity that has made computers so attractive to RA's worldwide.

Ham Tip 16: Replace missing or damaged screws from a computer screw kit - (DSE H1675)

Ham Shack Computers, No: 17 next month - "CQ Contest". Have you noticed pictures of contest stations with computers? Are you talking to a computer or the contest operator? For more, see you next month.

- Ham Shack Computers Web Site: www2.tpg.com.au/users/vk6pg
- Seagate Corporation Web Site: www.seagate.com
73s de Alan, VK6PG

ar

Silent Keys

The WIA regrets to announce the recent passing of:-

B J (Barrie) Lakey VK3BL
R M Churchward VK3VL
G (George) Harmer VK4XW
E J Harrison VK5AEH
V V (Vic) Noble VK5AGX

Are new EMR regulations a threat?

Jim Linton's (VK3PC) article raises some interesting issues that all amateur radio operators need to become more aware of.

Not least of all is that the new regulations are a massive threat to our chosen activity. Recent years have seen a steady decrease in the number of active radio amateurs for various reasons already discussed by others through this media. I would like to alert readers to the fact that these new regulations pose an even bigger threat than anything we have experienced till now.

Readers need to realise that we are a minority group and as far as the general public (read local councils) are concerned we add absolutely no value to the community. In fact we are a definite nuisance with the burden of permits and complaining neighbours. Unless the Mayor is an AR enthusiast himself (herself) you can expect to find no sympathy. Local councils are increasingly becoming more restrictive in what is allowed within city confines - not less so. Be prepared to encounter

only hostility from the local enforcement (council) agents.

Keep in mind that the law makes no provision for common sense - rest assured when a complaint is being investigated, the letter of the law is what will count and if the regulations are going to be as stated in Jim's article, be prepared for a massive impact. By way of illustration, consider part a) of Compliance level 1 which states ".....and antennas much be out of reach." This provides a guaranteed opening for an inspector to condemn every single station currently in existence. Out of reach will require a means of preventing determined or accidental access by any person. Taking the electricity industry as an example, this probably means a physical barrier consisting of barbed wire at least 1 m wide around the base about 2 m above ground level to prevent anybody (drunk, mad or otherwise) from climbing up towards the antenna. And what about that portable that you have been happily lugging around? Better sell it quickly because there is simply no way

you can meet " must be out reach". If this sounds silly to you, please think again. Local councils do not care about amateur radio (or common sense) and they will use each and every opening within the regulations to shut you down as soon as there is a single complaint from somebody.

Part b) is another issue, lowest part of the antenna 10m above ground? My current vertical is not even that long! I suspect there are already councils that most likely will not allow you to erect anything this high off the ground to start off with. Be assured antennas will become an endangered species if this stipulation is allowed to stand. And without antennas, there is no AR.

We need to lobby for appropriate wording that is specific and narrow so that there can be no local interpretation by councils. We ignore this seemingly innocuous new regulation at our own peril.

Pieter J Kriel VK5AU

Jim Linton VK3PC answers EMR critics

It is pleasing to see that our joint efforts resulted in the timely publishing in the June edition of AR magazine the article "Will your station meet EMR requirements?"

Comments I have received on it from club officials and WIA office-bearers are all in praise that this information presented in plain language is widely available.

The article was written drawing on the knowledge and experiences of the WIA team involved in the EMR issue with the ACA, Keith Malcolm VK1ZKM and Gilbert Hughes VK1GH, and also sourced directly to written material supplied to the WIA by the ACA

It is disappointing that a few radio amateurs are actively promoting misinformation about the proposed EMR limits, either out of a simple misunderstanding or for other reasons.

A letter I received from Ian Godsil VK3VP is an example of the simple misunderstanding that is occurring. Ian now agrees after discussion with myself that he missed the key word "either"

which precedes Compliance Level 1 (a) and (b).

Another letter by Pieter J Kriel VK5AU also demonstrates the same misunderstanding, unless of course his station is going to transmit in excess of 3200 watts EIRP.

I disagree with Pieter when he describes the proposed EMR limits as being a "massive threat" to amateur radio. While this may currently be the case in a number of European countries where local EMR limits are extremely rigid, the ACA has adopted an appropriate response to EMR.

An important thing to remember is that there is no change proposed to the current situation. It is already an implied condition of licence that an amateur installation complies with the exposure guidelines of the former Australian Standard (AS 2772.1).

What is being proposed in the new ACA EMR regime is the requirement by radio amateurs to be able to demonstrate compliance with EMR exposure limits.

Pieter also comments emotively on his

perception of local government's attitude to amateur radio and may be speaking from personal experience, I do not know. However, it is not local government's role to be involved in EMR compliance, and this is purely the jurisdiction of the ACA.

Should a neighbour complain to the local council about EMR, or interference, then the radio amateur would be wise if they cannot quickly resolve the matter, to refer it to the ACA for clarification or investigation.

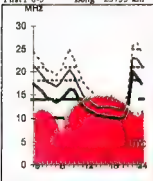
I welcome further debate on EMR, which is a most important issue for the WIA and the amateur radio fraternity. Fortunately the six month delay in introducing the new rules gives us sufficient time to discuss and be informed about how radio amateurs can be "good EMR citizens".

Jim Linton VK3PC

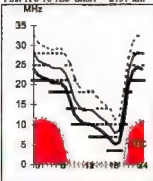
Views expressed on this page are those of the authors and do not necessarily represent the policy of the WIA

Adelaide-London 132

First F 0-5 Long 23755 km

**Brisbane-Honolulu 21**

First F 8-10 1E0 Short 2131 km

**July 2002**

T index: 100

Legend

Frequency scale
Time scale

- UD
- F-MUF
- F-MUF
- OWF
- ALE
- >10%
- 10%
- 50%

HF Predictions

by Evan Jarman VK3ANI

34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the non-rated circuits.

These frequencies are identified in the legend are:-

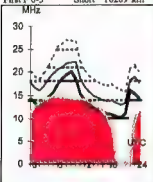
- Upper Decade (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.

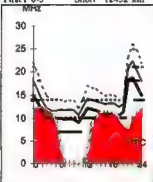
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

Adelaide-London 312

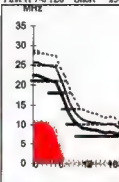
First F 0-5 Short 16269 km

**Brisbane-Montevideo 154**

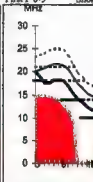
First F 0-5 Short 12432 km

**Canberra-Auckland 102**

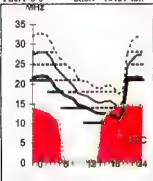
First F 0-5 Short 2300 km

**Darwin-Seattle 44**

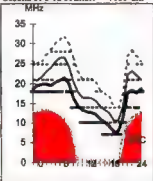
First F 0-5 Short 12282 km

**Adelaide-Los Angeles 66**

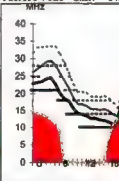
First F 0-5 Short 13159 km

**Brisbane-Tokyo 348**

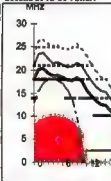
Second 3F6-12 31 Short 7159 km

**Canberra-Honolulu 50**

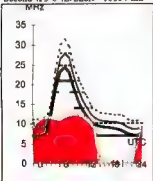
First F 3-7 3E0 Short 8407 km

**Darwin-Singapore 295**

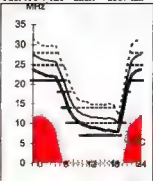
Second 2F12-20 5 Short 3351 km

**Adelaide-Pretoria 238**

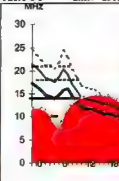
Second 4F5-6 4E0 Short 10064 km

**Brisbane-Wellington 133**

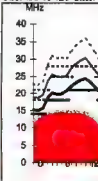
First F 5-7 1E0 Short 2507 km

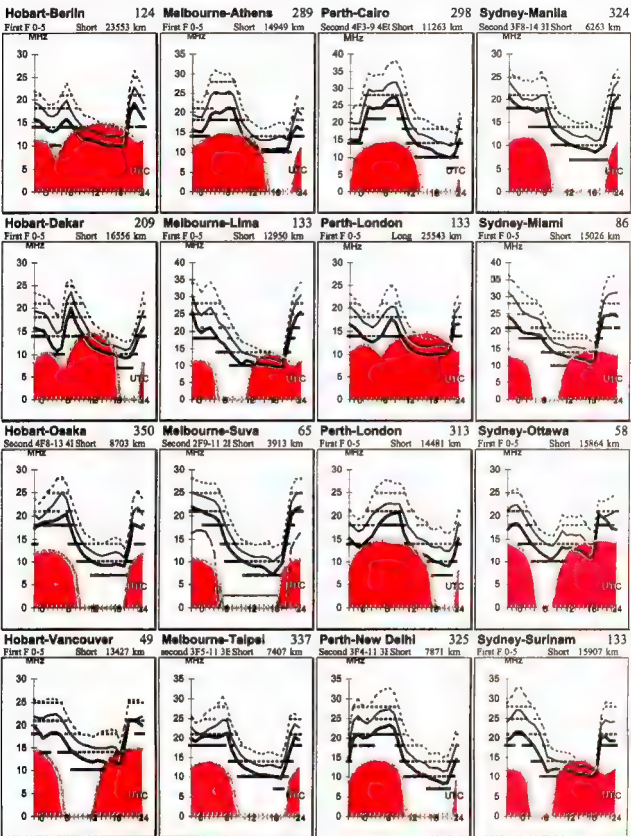
**Canberra-Paris 130**

First F 0-5 Short 23100 km

**Darwin-Tel Aviv 301**

First 4F3-10 4E0 Short 11302 km





VHF/UHF

AN EXPANDING WORLD

David K Minchin VK5KK

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Web page: <http://members.ozemail.com.au/~tecknolt>

Fax: +61 8 8292 4501 Phone: 0403 368 066 AH ONLY

All times are in UTC.

50 MHz

John VK3KWA reports ... a claim has been made for the first VK9 long path record for the 6-metre band. The details are: VK9ML to PY5CC, date 15/04/02, distance 25517.3 km. VK9ML was operating from Mellish Reef and the operator at the time of the contact was Katsu, JH7OHF. Peter PY5CC is located at Matinhos in the state of Parana in the south of Brazil.

Also, VK3SIX is not closing but is operating intermittently as a manned station until it can be relicensed under the call sign VK3RMV, due to ACA instruction that beacons may be operated only under "R" call signs ... John VK3KWA.

Bevan VK4CXQ reports ... not much to report from Townsville on the 6 metre activity in the area. There really hasn't been any, which at this time on the year is not a surprise. Some JAs have been coming through but the signals have not lasted for very long. It's a case of "hear them, work them or you miss them". Have worked a few ilnc JD1BKZ but that is all. Recd a QSL from A45XR after sending over two of mine (both direct with IRCs) ... Bevan -VK4CXQ-Townsville

Neville VK2QF reports ... it has been an interesting if not challenging cycle from this location. Openings have been brief compared to the luxury of cycle 22, which has made us complacent with the quality of the paths that can be possible on this band!

Personally: 6m DXCC in September 2000, over 20 new entities this cycle, and these prefixes in total worked so far: (6Z) KH2, VK9M, P43, JT1, ZF1, DU7, KL7, BD4, VE7, FW, CE0Y, ZK1 [N], YJ8, YS1, VK9N, 8A, I, EH3, S52, OM3, SP9, OK1, OE3, DL7, YV1, VR2, 3D2, PJ2, EY8, VP5, J87, 9M2, ZK2, AH8, V31, TG9, VP6, TX0, 9M6, HR1, FO5 [T], 3D2[R], P29, W6, 3F3, HL5, TI5, YN1, KH4, BV2, JD1 [O], JD1 [MT], T33, T88, XE1, YB9, KH8, FK8, VK9, V73, JA1, ZL2.

It's been a lot of fun to study the propagation and know "when to go and when to show" to catch the best openings. The season came after a promising level of solar activity in December. Unfortunately conditions trended down toward the equinox. This pattern has been the sequence throughout this cycle almost appearing to run in opposition to the behavior of cycle 22 where solid peaks tended to occur near the equinox [coincidental but providing great six metre propagation].

Excellent TEP conditions were present in early February to Japan. Several days of European indicators in the usual 8 to 10Z window but low in strength. On the 21st G0RUZ [Conrad] did recognise some CW from VK2QF using EME computer enhanced DSP techniques and EI7BMB also heard similar at 1140 to 1209Z on that day.

Early March showed good indicators from Asia by TEP with propagation from Central America and the Caribbean Sea

in the usual 2030 to 0Z window. Little was heard in mid March until the 24th with a reasonable North American opening and some Pacific stations heard [5W, FO3 etc]. Probably the surprise of the season was to work Aruba and the Netherlands Antilles toward the end of March and to hear them both on other days also. Spanish stations were able to hear the Mt Mowbullen [Towoomba] video in the late March and early April period, unfortunately the Mt Ulandra [Wagga Wagga] video was never reported. This is classic of this region with regards to this type of propagation for some anomalous reason (probably due I suspect to E layer for example in the target area acting as an ALF to 50MHz propagation yet as a vector to the more frequent paths to VK4 and VK3).

Mid April had several promising days. Propagation began with solid backscatter indicators from the East [ZL video signals on 45MHz]. Brief contacts were made into Central and North America. Later Oceania and South East Asian signals were strong, especially Indonesian, Singapore and East Malaysia. Unfortunately no propagation was heard from Africa in the expected window of mid to late April. This was despite the usual Hawaii to South African propagation so familiar during Cycle 22

The next equinox will be an interesting one; it could be the end of productive paths for this location on 50MHz.

Neville VK2QF

Digital "DX" Modes

Reg VK7MO reports ... John VK2TK joined the group and copied a number of stations including ZL3TY over the weekend of 15/16th of June 2002 Gavin VK3HY joined in listening (looking) mode Bob, ZL3TY, Joe, VK7JG, and Rex, VK7MO, all made their first JT44 EME contacts.

Ian, VK3AXH, has kindly agreed to take over "WSJT News" and running the 7085 liaison while I am away on the mainland. I will be away for an undetermined time, awaiting my first grandchild, attending GippsTech and activating some rare grid squares in outback VK2/5 and possibly VK8. I

should be found on FSK441, 144.330, from 7.00 to 8.00 am most mornings TXing second period. When I am within range of active stations I will also try JT44, 144.225 and 432.225 from 7.00 to 8.00 in the evening, TXing second period. Times are Eastern Australian Times. If I happen to be within mobile

range liaison can be on 0408 147 808. Otherwise I will try liaison prior to these times on HF, 3650 or 7085

The Type C effort on Sunday did not work out, as we did not seem to have any VK5s or VK4s on. Following a discussion on 40 meters we will go to Type A on both Saturday and Sunday unless we have advice that a VK5 or VK4 station will be on for the Sunday. I have also changed the format of a Type C so that all other stations TX to VK5 when we do run with a Type C.

Type A VK3/5/7 TX's first to the North, VK2/4 TX's second and to the South

Type B VK7/2 TX's first to the North, VK5/3/4 TX's second and to the South

Type C VK7/3/2/4 TX's first to the West, VK5 TX's second to the East
If any VK5s or VK4s would like a Type

B or Type C on any Sunday please let Ian, VK3AXH know prior to Thursday each week so he can promulgate any change via the reflector ... Reg VK7MO

John VK3KWA reports ... There is now a new national Digital Modes record (WSJT FSK441) for 2 metres: VK2EI to ZL3TY, 14/05/02, 2028.2 km. The previous record, also set with WSJT, was: VK4TZL to VK7MO, 17/11/01, 2017.3 km. ... VK3KWA

From overseas comes the first "claimed" 50 MHz digital EME contact ... Lance, W7GJ, had been frustrated during this past solar cycle peak by the rarity of European and other 6-metre DX into Montana, despite his 70-foot Yagi and 1500 W. So he built an array of four Yagis on an el-az mount in hopes of making up for the lack of F-layer propagation with EME contacts. Lance made a few CW contacts off the Moon,

but these proved to be quite difficult until he tried the new JT44 program. He discovered it was much easier to complete EME contacts with single-Yagi stations when the Moon was near the DX station's horizon using the new digital mode.

W7GJ's first such contact was with ZS6WB on April 21, perhaps the first 6 metre EME contact using JT44. Lance could make out a clear trace on his Spectran digital audio filter waterfall display during his QSO. Based on his initial experiences, Lance thinks he could complete with any 100 W station with a moderately sized Yagi and good receiver preamp. It also seems likely that pairs well equipped single-Yagi stations could also make EME contacts using JT44 when the Moon was near the horizon for both stations. .. Courtesy of Emil W3EP, QST.

EME Report

Doug VK3UM reports on his EME activity on the 15th and 16th of June, 2002. Managed to get on for a short time and found conditions 'normal' and worked the following (no new ones) all random contacts on 432 MHz EME.

15/06/02

UTC
1009 VK4AFL 55N 55N TH RH
1037 DL8OBU 53N 54N TH RH
1054 JH4JLV 53N 44N TV RV

16/06/02

0223 K9SLQ 55N 55N TV RV

0244	K1FO	56N 56N TV RH
0254	KU4F	56N 56N TV RH
0300	N9AB	55N 56N TV RH
0315	JA4BLC	33N 55N TH RH
0335	JA6AHB	54N 55N TH RV
0910	UA3PTW	54N 56N TH RH
1106	OM1TL	43N 44N TH RH
1116	G3LTF	55N 56N TH RV
1123	DF3RU	55N 55N TH RH
1134	G4YTL	54N 54N TH RH

Doug VK3UM

From Emil W3EP, editor of QST's World above 50 MHz column RW3BP completed his first 24 GHz EME contacts

with W5LUA, VE4MA, and AA6IW between April 18 and 21, according to Barry Malowanchuk, VE4MA, who has been one of the pioneers of microwave EME activity. The Moon was just 7.5 degrees above the horizon for RW3BP during his third QSO, which added considerably to atmospheric absorption and noise. VE4MA went on to work VE7CLD and AA6IW for his third and fourth initial contacts. All stations ran at least 75 W from travelling-wave tube amplifiers.

AO40 portable operation from Algeria

Mirek VK3DXI reports ... I will be shortly going back to Algeria again. It is possibly my last trip, as the project is almost completed. Arrival in Algeria possibly first or second week of July, for period of 3-4 weeks..

I will try again all bands, 160-10 m plus AO40.6 metre is NOT allowed so far.

I will have a limited free time, as it is a business trip. Possible operating times after 18:00 UTC and before 05:00. Fridays, I will try to have free for ham radio. I am bringing also a portable set up for AO40 as before!

Updates and details of my activities,

sound recordings of some contacts, visitor book (pse post any special requests) and log-on-line at: <http://www.7x0.sp5zcc.waw.pl> QSL via DL4DBR ... Mirek 7X0DX, VK3DXI, VK2DXI, 9V1XE, SP5IXI

Oscar 7 returns from the dead!

The AMSAT-OSCAR 7 satellite suddenly has come back to life after being dormant for more than 20 years. First heard June 21 by Pat Gowan, G3IOR, AO-7 subsequently has been monitored and used by

Several other amateurs AO-7 was launched November 15, 1974. It remained operational for more than six

years before succumbing to battery failure in 1981.

"I'm blown away," was the reaction of AO-7 Project Manager Jan King, W3GEY. "So, this old war horse of a spacecraft seems to have come back from the dead if only for a few moments." Exclaimed satellite enthusiast and AMSAT Vice President for User Services

Bruce Paige, KK5DO, "This is really awesome." Paige said the latest turn of events makes AO-7 is the oldest amateur satellite that's still working. AMSAT-NA has now listed AO-7 as "semi-operational"

AMSAT says it seems certain the satellite is running only off its solar panels, not from the onboard batteries,

2 ARISS schools in one day

Tony Hutcheson VK5ZAI

NEWINGTON, CT, Apr 30, 2002—Astronaut Dan Bursch, KD5PNU, aboard the International Space Station, concedes that he and his crew mates sometimes get on each others' nerves. The comment came today as Bursch answered questions from an enthusiastic group of youngsters at Woodland Middle School on New York's Long Island.

If you can imagine taking a long family trip and never getting out of the car for six months, Bursch said, replying to a question about whether he and his crew mates ever get frustrated or annoyed with each other. The three ISS crew members occasionally bug each other over little things, Bursch said, and when that happens, they usually go off and do something else by themselves.

Onboard with Bursch are Expedition 4 crew commander Yuri Onufrienko, RK3DUO, and astronaut Carl Walz, KC5TIE. Visiting this week are space tourist Mark Shuttleworth of South Africa, cosmonaut Yuri Gidzeno of Russia and European Space Agency astronaut Roberto Vittori, IZ6ERU, of Italy.

The Woodland contact was the first of two Amateur Radio on the International Space Station (ARISS) school QSOs today—an ARISS first. After a missed schedule earlier in the day, a contact between Shuttleworth and South African students was promptly—and successfully—rescheduled.

A few hours after the Woodland contact, Shuttleworth was a no-show for a scheduled contact with students from more than a dozen schools in South Africa's in KwaZulu Natal province. Through a series of telephone calls, ARISS was able to reschedule the contact during a pass over Australia, have the Russian mission control center notify Shuttleworth and even arouse a

sleeping Tony Hutcheson, VK5ZAI, in South Australia to handle Earth-station duties.

Shuttleworth was able to answer questions from five of the South African students, turning the earlier disappointment into delight. At least two additional ARISS schools involving Shuttleworth have been set for this week, making it the busiest ARISS schedule on record since the first crew came aboard the ISS in November 2000. On April 29, Shuttleworth told students at his alma mater in Cape Town that he's living his own dream in space.

ARRL report April 30, 2002.

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VHF/UHF – an expanding world continued

so it will be operational only while it's in sunlight. King speculates that the batteries, which shorted as they failed two decades ago, now are "un-shorting" and causing the satellite to come back to life.

For those attempting to use AO-7, Mode A (2 metres up/10 metres down) is not a problem, but Mode B (70 cm up/

2 metres down) is. Because of changes in the international Radio Regulations that went into effect in the 1970s as AO-7 was under construction, the 432.1 MHz uplink frequency is no longer authorized for space communications.

Built by a multinational team under the direction of AMSAT-NA, AO-7 carries Mode A (145.850-950 MHz

uplink; 29.400-500 MHz downlink) and Mode B (432.180-120 MHz uplink; 145.920-980 MHz downlink) linear transponders plus beacons on 29.500 and 145.700 MHz. A 2304.1 MHz beacon was never turned on because of international treaty constraints. For additional information on AO-7 on its Web site, <http://www.amsat.org>. (Courtesy of AMSAT News)

Microwave Round Up

This month a quick tip on extending the range of your spectrum analyser to 24 GHz or a crude ATV Rx converter for the same band .. Kerry N6IZW reports ... I was running some out of band frequency response tests on a K-Band DBS TV LNB the other day and saw something that might prove to be useful for Amateur use.

Although they are designed to convert 12.2-12.7 GHz down to 950-1450 MHz, they also respond to harmonics of the LO. It turns out that the second harmonic of the internal DRO type oscillator running at 11.25 GHz (note those used in Australia have a 11.3 GHz

DRO .. VK5KK) mixes with a 24 GHz input to produce an IF output of 1.5 GHz. While this is outside of the specified IF range of the LNB (950-1450 MHz) it appears to respond well out to nearly 1700 MHz. The sensitivity is not great as one might expect but it might be useful as a crude down converter allowing 24 GHz TX in the low milliwatt range to be observed on a lower frequency spectrum analyser.

Potentially useful responses I found are 20.8-21.5 GHz LO second harmonic high side mix and 23.4-24.2 GHz LO second harmonic low side mix. It also responds to the third harmonic of the

LO receiving: 32-32.7 GHz LO third harmonic high side mix and 34.6-35.4 GHz LO third harmonic low side mix .. Kerry N6IZW

In closing

I look forward to catching up with a number of the regulars at Gippstech this month; a full report will be in the August column.

I'll leave you with this thought.. "Next to the Dog, man's best friend is the Waste Paper basket!"

THE DAVID VIKING

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At long last...

After years of discussion Perth finally has a 10 metre repeater. There had been much interest in such a repeater for Perth but it required the doing, and equally important finding a location. Tony VK6YAG and Jay VK6YJS were able to put all this together and the repeater is now on air from two test locations (receive and transmit site).

Ten-metre propagation between Perth and the East coast of Australia has been exceptionally good for several years. The Melbourne repeater, VK3RHF is heard in Perth most of the time during daylight hour's noise free.

While mentioning the Melbourne

repeater VK3RHF, with inputs from several other bands, how about someone with technical knowledge of the repeater writing an article for Amateur Radio magazine. This is a great repeater that has been on air for a couple of decades

and some of us would like to know more about it.

The following article was written by Tony for VK6's repeater group annual newsletter and is reproduced below with Tony's permission.

Perth's new 10 metre FM repeater

Perth has a new 10-metre repeater. It has been under design and construction for about the last 18 months and is now finished and is licensed and on air. All of this work has been done by Tony Green (VK6YAG) with help from Jay (VK6YJS). After listening to and working various repeaters across Australia and around the world we made a note of the good and bad points of the various machines we encountered. These things influenced the design of our machine.

One of the main "bad" things was that when DX was good it was possible to "hit" more than one repeater at the same time. The received mess that came back was frustrating to say the least. Another, perhaps more serious concern is the pirate activity that seems to extend right through the whole 10 metre band.

An easy fix to both problems was to fit a CTCSS decoder to the input of the 10-metre receiver. The need to have a CTCSS encoder to use this repeater is not as bad as it first seems as only one station needs to send this signal as the decoder goes to "open" access for a few minutes to give other stations without a CTCSS encoder a chance to reply.

The other features include a DTMF controller, which can turn the decoder off and make the repeater "open" access. There are several user DTMF commands. Each command is made up of 2 sequential DTMF tones. The first tone is always a # or *. This must be held

on for about 1 to 2 seconds followed by a digit. (1,2,3...9). In each case * turns the option "ON" and # switches the option "OFF". Here is a list of the user commands:

- *1 NOISE BLANKER ON
- #1 NOISE BLANKER OFF
- *3 CTCSS DECODE TIMER ON
- #3 CTCSS DECODE TIMER OFF
- *2 CTCSS ENCODER ON
- #2 CTCSS ENCODER OFF
- *4 HI MUTE ON
- #4 HI MUTE OFF
- 9 ANNOUNCE TIME (no * or # needed)

The inclusions of an adjustable noise blander and mute level setting are features not normally required on VHF but considered a must on 10 metres FM.

The repeater features voice recorder/playback module for ident, DTMF command confirmation and a talking clock. The repeater can be patched into the NEWSWEST link to re-transmit the weekly news broadcast. Other safeguards and control functions have been included to ensure the repeater will or can be shut down remotely in case of malfunction or interference.

Basic specifications (proposed)

Output frequency	29.680MHz
Input frequency	29.580MHz
CTCSS tone	179.9Hz

(see notes)

Power output	120 W FM
RX site	Bedfordale
TX site	Leeming
Leeming temporarily, we are looking for another site.	

By Tony VK6YAG

Hardware

The repeater is essentially 'home brew' and is comprised of four radios, with their associated controllers, timers and ident boards. The main difference with an HF repeater is the need for isolation between the RX and TX antennas.

This is achieved with separate RX/TX sites using UHF radios and YAGI antennas to link the two sites.

The HF receiver is based on a Tait T499 lowband. The UHF link transmitter is a modified Motorola handheld with an FM828 PA. The UHF link receiver is also a modified Motorola handheld. The HF exciter is based on a Tait T499, an intermediate amplifier using a 2N5591 transistor and a home brew final PA using an MRF421 transistor.

Various audio filters and leveling amplifiers are used to maintain audio frequency response and deviation.

Special thanks go to various people including Fritz VK6UZ, Bob VK6TRA, Rob VK6JRC, Jay VK6YJS and the West Australian repeater group for their support.

HAMADS

- Hamads may be submitted by email or on the form on the reverse of your current Amateur Radio address flysheet. Please print carefully, especially where case or numerals are critical.
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- Does anyone have Eddystone RX's no longer being used? Models wanted EC10 or 960. Like to hear from you. Call Bruce VK3YBW QTHR. Phone 03 9527 2661 after 6pm most evenings, or leave message
- SPECIFICATIONS and set-up measurement for the CHIRNSIDE 8 ELE TRIBAND beam. VK3BE Colin Phone 03 5668 2109, 0429 614 368
- RADIO SERVICE MANUALS (Australian Official), Vol 7 (1949) & Vol 8 (1949). Please advise prices etc if you have one or either (or later volumes). Terry VK3ZXY QTHR Phone 03 9592 3514, email vk3zxy@lethly.com
- Help! I need a Serv ce Manual for a facsimile of same) for a PYE OVERLAND model F25 FM738DV/12 valve VHF transceiver that I am trying to rebuild (remember when Australia had a manufacturing base?). VK2CPR. Please phone BH 03 5723 8335 or AH 02 6021 5008, shiephi@galen.sand.catholic.edu.au, QTHR
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- Copy of Drew Diamond's Radio projects for the amateur - Volume 1 Neil VK3J Email neilvk3j@hotmail.com.au or phone 03 9389 1010

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- MANUALS for ICOM IC-701 and YAESU FT-990, photocopies OK and all expenses paid. Reply VK4DV QTHR, mervd@rocknet.net.au

Internet "question banks" essential for training newcomers

I have read with interest the June Education Notes by Brenda Edmonds and hold many of the same reservations about the "Foundation Licence", particularly the supervision of newcomers.

One of the difficulties of training people in Australia for an amateur license has been the fact that the only available official requirement for the theory exam has been the syllabus. This, unfortunately, is open to an interpretation which leads educators to

teach too much information to make sure that enough has been imparted. No text book on the subject has been written by an author who has had access to the relevant question bank so there is no really authentic study material. Many of the "trial" question banks and exams contain questions other than those likely to be asked in an official exam.

It is with great joy that I learnt that the WIA has released the Regulations question bank onto the internet and will soon have printed copies available.

There is also a possibility that, in the not too distant future, it may release the AOCIP and Limited theory question banks and that will be something to look forward to. It will also bring us unto line with the USA, New Zealand and Canadian fraternities who publish their question banks on the internet. May we grow and prosper in useful comradeship.

73. Neil Trainor VK3LJ

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* RCI 2950 ten metre rig \$375. FT-8100R dual band mobile with separation kit \$850. TS 520S KENWOOD HF \$200. DSP-9 audio noise filter \$100. Mark VK6MK QTHR. Phone week days 08 8356 8325 or 08 8836 7278.

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October 19 & 20,
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Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

VK1 Division Australian Capital Territory.
GPO Box 800, Canberra ACT 2601
President Gilbert Hughes VK1GH
Secretary Peter Kioppenburg VK1CPK
Treasurer Trevor S Orr VK1LSO

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 432, Harris Park, 2150)
(Office hours Mon-Fri 1100-1400)
Phone 02 9689 2417
Web: <http://www.ozemail.com.au/~vk2/>
Free call 1800 817 644
e-mail: vk2w@ozemail.com.au
Fax 02 9633 1525
President Terry Davies VK2KDK
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Treasurer Chris Minahan VK2EJ

VK3 Division Victoria
403 Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.00 - 2.30)
Phone 03 9885 9281
Web: <http://www.wlavc.org.au>
Fax 03 9885 9298
e-mail: [wlvic@wlvic.org.au](mailto:wlavc@wlvic.org.au)
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VK5 Division South Australia and Northern Territory
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Phone 0403 368 066
web: <http://www.sant.wa.org.au>
e-mail: peter.reichelt@bigpond.net
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Phone 03 6234 3553 (BH)
Web: <http://www.tasnet.edu.au/tasnet/vk7wla>
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e-mail: batesjw@netspace.net.au
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Broadcast schedules All frequencies MHz. All times are local.

VK1WV: 3.590 LSB, 146.950 FM each Thursday evening from 8.00pm local time. The broadcast text is available on packet, on Internet aus.radio.amateur.misc news group, and on the VK1 Home Page <http://www.vk1.wia.ampr.org>

Annual Membership Fees. Full \$80.00 Pensioner or student \$71.00. Without Amateur Radio \$48.00

From VK2WV 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday at 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup aus.radio.amateur.misc, and on packet radio.

Annual Membership Fees. Full \$80.00 Pensioner or student \$63.00. Without Amateur Radio \$50.00

VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM/RJ3 VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM/RJ3 VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full \$83.00 Pensioner or student \$67.00. Without Amateur Radio \$51.00

VK4WIA broadcasts on 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.660 MHz SSB (PHF), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ@VKNET. QNEWS Text and real audio files available from the web site

Annual Membership Fees. Full \$95.00 Pensioner or student \$81.00. Without Amateur Radio \$69.00

VK5WV: 1843 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 LSB, 7.065 LSB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3.585kHz and 146.675 MHz FM. The broadcast is available in 'RealAudio' format from the website at www.sant.wa.org.au/Broadcast Page area.

Annual Membership Fees. Full \$68.00 Pensioner or student \$73.00. Without Amateur Radio \$58.00

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Bussellton, 146.900 (R) Mt William (Bunbury), 147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900, 147.000, 147.250 and 147.350 MHz. Also in 'Real Audio' format from the VK6 WIA website

Annual Membership Fees. Full \$71.00 Pensioner or student \$65.00. Without Amateur Radio \$39.00

VK7WV: 146.700 MHz FM (VK7RHT) at 0630 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.580 at 1930 hrs.

Annual Membership Fees. Full \$90.00 Pensioner or student \$77.00. Without Amateur Radio \$57.00

VK8 Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz. The broadcast is downloaded via the Internet.

RD

participants and their equipment



VK2AYD David Pilley's Station



VK5UM Mike Richardson

1/65 Caffrey Street, McLaren Vale 5171
The set up for the 2001 RD was as follows:
TCVR TS440S 100W
3 element Triband Yagi -10/15/20
Inverted Dipoles 40/80
1/4 wave Semi Vertical - horizontal 160
Currently the Antenna is a 10 - 80 Vertical by Com-ant-ena.



VK4DO Wally Watkins



VK4LT Al Carter

At 86 Al is still active. Enters the Open section as it lets him save his voice. He thinks he has participated in every RD Contest. Says each year will be the last but !! He was licenced in 1938 and was in AIF Army Sigs from 1939 to 1946.



VK6AFW Tony Wong

Tony has been VK6 CW section leader in 2001,2000,1998,1996,1993,1992,1987 and 1986



VK6LC Mal Johnson

I gained 1st place for H.F. Phone section for the 2001 RD Contest . Certificate No. 25 dated 1.3.2002.

My comments for the contest:

I did enjoy the 2001 RD contest as it was a pleasure to catch up with many old friends and meet many new Amateurs with a spirit of "Remembrance Day". I look forward to it each year hoping to meet you and others next RDC.

Being also a retired Royal Australian Sig that served in military action appreciates all those "unsung heroes" (signalman and signalwomen) that paid the supreme sacrifice and did more for us than we will really ever know or read.

Mal. VK6LC

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